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Investigating the Effects of the EU Mandatory Adoption of IFRS on Accounting Quality: Evidence from Italy

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Abstract

The European Community Regulation No. 1606/2002 required all EU listed companies to prepare their consolidated financial statements in accordance with IFRS as from 1 January 2005. This paper studies the impact of the IFRS mandatory adoption in a typical code-law European country such as Italy. It aims to investigate how and whether the accounting information quality changes following IFRS implementation. The focus is on value relevance which is considered as one of the basic attributes of accounting quality. An empirical analysis is performed on a sample of 960 firm-year observations concerning Italian listed companies observed from 2002 to 2007. Results confirm the expected overall increase in the value relevance under IFRS. The research also documents changes in Italy's country-specific factors in the period surrounding IFRS adoption that may contribute to an improvement in accounting quality. Such a concern is consistent with previous literature supporting the idea that accounting quality does not depend only on the high quality of accounting standards, but it is also a function of the country's complex institutional setting.

Keywords: IFRS, Value relevance, Accounting quality, Country-specific factors, Regulation

1. Introduction

In 2002, the Parliament and the Council of the European Union (EU) approved a Regulation (No. 1606/2002) requiring all listed companies in the EU to use the International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB) for the preparation of their consolidated financial statements from 1 January 2005 onwards. Member states have the option to extend this requirement to individual company accounts and to consolidated accounts of non-listed companies. (Note 1) One of IASB's main goals is to develop a single set of accounting standards that, if followed, requires companies to report "high quality, transparent and comparable information in financial statements". (Note 2) Evidence of higher accounting quality has been interpreted by Barth, Landsman and Lang (2008) for the IFRS-adopting firms who exhibit less earnings management, more timely loss recognition and more value relevance of earnings, based on a worldwide sample. Such concerns lead to the expectation that the IFRS mandatory adoption in Europe should determine important economic consequences for financial reporting.

The present study focuses on Italy, a typical European code-law country that has been experiencing the IFRS mandatory adoption. It aims to investigate the effect of the IFRS adoption on the accounting information quality. Since accounting quality is a broad concept with multiple dimensions (Burgstahler, Luzzi, & Leuz, 2006), this study focuses on the value relevance which is considered one of the basic attributes of accounting quality (Francis, LaFond, Olsson, & Schipper, 2004). Value relevance expresses the ability of financial statement information to capture or summarize information that affects share values and it is indicated by the statistical association between accounting information and market prices or returns (Francis & Schipper, 1999, pp. 326-327).

By using consolidated financial statement data from a sample of 960 firm-year observations concerning 160 Italian listed companies observed from 2002 to 2007, the value relevance in Italy is investigated to answer the first research question: *Does the value relevance of earnings and book value of equity systematically change in Italy with the mandatory adoption of IFRS?* For this purpose, the combined, relative and incremental value relevance of book value of equity and earnings with respect to share prices are examined. In addition, the value relevance of earnings levels and earnings changes is investigated for the period 2002-07 using the return regression model. To test for a systematic change in the statistical association between stock prices/returns and accounting numbers induced by adopting IFRS, pooled regressions comparing value relevance in the pre-adoption period (i.e, from 2002 to 2004) with the post-adoption one (i.e, in the three-year period 2005-2007) are estimated.

Data are also analyzed on a sectoral basis to answer the second research question: *How does the IFRS adoption impact*

the value relevance in the different sectors? To respond to this the same set of association studies are performed separately for firms operating in the Finance, Industry and Services macro-sectors to study cross-sectional differences in the value relevance.

Italy was chosen as the subject of this research because the country's institutional structure should enable the detection of early evidence of the impact of IFRS mandatory adoption at country level. Firstly, Italy has a "civil law-based" legal system in which the rules governing accounting are the product of the lawmakers and their political superiors (Di Pietra, McLeay, & Riccaboni, 2001). Accounting standards set by the national professional body have always only played an interpretative role of the legal rules and they have never been officially recognized as law. Their ambiguous status has influenced their scarce application and recognition by professionals and companies (Zambon, 2001). Secondly, the Italian accounting rules show significant differences from IFRS. They have been driven by emphasis on the financial statement conformity with tax regulations, conservatism, and broad-stakeholder orientation. Conversely, IFRS have a stronger economic and business orientation, with a particular focus on the information needs of capital markets.

Another reason why Italy is an interesting case study is the choice of the national legislator to require the use of IFRS also in individual accounts of listed companies, thus taking a different orientation compared to most Continental European countries where this use has been left as an option. Such an extension should strengthen IFRS enforcement by making accounting numbers of consolidated financial statements more reliable for empirical analysis.

At any rate, it is worth noticing that positive effects of IFRS adoption on accounting quality are not necessarily straightforward since, as reported in literature, political and economic forces could affect financial reporting behaviour (see, among others, McLeay & Riccaboni, 2001; Ball, Robin, & Wu, 2003). In this respect, Ball (2006) points out that in Europe most political and economic influences on financial reporting practice remain local despite the IFRS adoption. Thus, an exogenously imposed set of accounting standards, such as IFRS with their common-law view of financial statements, does not necessarily influence per se financial reporting quality, particularly in countries with a code-law institutional setting. Along the same line, Soderstrom and Sun (2007) claim that cross-country differences in accounting quality are likely to remain after the IFRS implementation because accounting quality is affected by the country's legal and political system, as well as by the incentives to financial reporting. Taking these considerations into account, the present study also documents changes that Italy has been experiencing since the last decade in its country-specific factors. They could contribute to the improvement of IFRS implementation, therefore positively influencing accounting quality. In summary, Italy has been undergoing a significant changeover. Particularly, owing to the mandatory requirement to apply IFRS, it has been shifting its form of accounting regulation: from a bureaucratic type to forms of progressive delegation or self regulation which, as reported in Di Pietra et al. (2001), characterize countries like the U.S.A. and the U.K., respectively.

Prior research reports a positive impact of the voluntary IFRS adoption on accounting quality (Soderstrom & Sun, 2007, p. 695); whereas, little evidence is reported when the adoption is compulsory. This study tries to contribute to the international accounting research focusing on a country experiencing the mandatory adoption of IFRS. Research results may provide some insights about properties of IFRS versus national standards in the current EU setting. At the same time, they may also contribute to the literature examining the quality of IFRS-based accounting amounts.

The rest of the paper is organized as follows. Section 2 describes the prior research. Section 3 discusses the changes in Italy's country-specific factors. Section 4 deals with the research design, the sampling information and the hypothesis development. Section 5 illustrates the results of the empirical analysis. The final section presents some concluding remarks.

2. Related Literature

This paper originates from that stream of research which is aimed at comparing the value relevance of earnings and book value generated by different sets of accounting standards. Some of the research efforts in this field concern non-US firms listing on the New York Stock Exchange (e.g. Amir, Harris, & Venuti, 1993; Harris & Muller, 1999) and studies that compare the explanatory power of earnings and book value across countries (e.g. Joos & Lang, 1994; King & Langli, 1998; Ali & Hwang, 2000; Arce & Mora, 2002). Other studies aim to provide findings which have implications for policymakers on recent moves towards replacing local GAAP with IFRS for non-European countries (e.g. Sami & Zhou, 2004; El Shami & Al Qenae, 2005). Along the same line, the present study tries to contribute to the international debate about replacing local GAAP with IFRS in Continental Europe. Most of the related literature is concentrated on Germany. Bartov, Goldberg and Kim (2005) examine value relevance in Germany from 1998 to 2000 and find a higher value relevance for earnings prepared under either IFRS or US-GAAP in comparison to those prepared under German GAAP. These results hold for profit observations only. Different findings are reported in Hung and Subramanyam (2007), who compare the financial statement effects of using IFRS to those using German GAAP for a sample of German companies that elected to adopt IFRS. Results show that the adjustments for book value between the two reporting systems are value relevant, but not for earnings. In addition, no difference in value relevance of book value and earnings under IFRS and German GAAP emerges.

It is not easy to draw reliable conclusions about the effects of IFRS adoption in Germany by comparing the results of the last two studies, since they reach somewhat conflicting findings. The main reasons are probably attributable to the bias deriving from the analysis of self-selected firms due to the IFRS voluntary adoption phase as well as to possible differences between the two samples.

Some distinguishing elements of the present study should enforce its results with respect to other similar research. Firstly, a representative sample of companies is observed longitudinally in time, so that the survivorship bias problem is minimized. Secondly, results do not suffer from possible a self-selection bias as the study concerns a mandatory adoption of IFRS instead of a voluntary one. Thirdly, Eccher and Healy (2000) provide evidence that prices may reflect investor clienteles and can differ across firms. Controlling for macro-sectors allows the investigation of value relevance for firms with similar characteristics and should reduce such a bias. Last but not least, cross-country studies rely on the rather unrealistic assumption that countries share the same capital market microstructure and the same macro-economic environment. It is evident that this bias is removed by limiting the analysis to a single country because it correctly presumes that the pricing process is the same for all the observed firms.

3. Italy's Country-Specific Factors

Consistent with the view that the adoption of an exogenously-developed set of accounting standards, such as IFRS in Europe, may not necessarily increase accounting quality unless improvements in the institutional factors are also brought about (e.g. Ball, 2006; Soderstrom & Sun, 2007), this study supports the idea that changes in some of Italy's country-specific factors could contribute to improving IFRS implementation, therefore positively influencing the quality of accounting information. Cross-country studies investigating the association between stock prices and accounting numbers quantify the influence of country-specific factors (e.g. Ali & Hwang, 2000; Hung, 2001), while other studies, which focus on individual countries, describe these factors in a qualitative manner; that is, by indicating whether they increase or decrease the value relevance and under which conditions (Hellström, 2006). This is the case of the present study which focuses on six country-specific factors suggested by prior research on international differences in financial reporting practice, namely: legal system, financial system, equity market, ownership concentration, auditing and tax system.

La Porta, Lopez-De-Silanes, Shleifer and Vishny (1997) report that French-civil-law countries have both the weakest investor protections and the least developed capital markets in comparison to common law countries. These are the characteristics of Italy which is classified by La Porta, Lopez-De-Silanes and Shleifer (1998) as a French-civil-law country with some German influence. Previous studies show that accounting quality is higher in countries with a common law origin and high protection of shareholders rights (e.g. Ball, Kothari, & Robin 2000; Ali & Hwang, 2000). In this respect, the legal system in Italy is expected to negatively affect value relevance.

As to the main sources for corporate funding, Italy has been classified as a bank-oriented country (Demirguc-Kunt & Levine, 2001). Berglöf (1990) defines the bank-oriented financial system as characterized by close links between firms and banks, which supply most of their capital needs. Banks are the principal financing agent and also play an important role as shareholders. Actually, Italian banks do not have a large share in companies ownership but, being the companies main capital suppliers they have easy access to firms' financial information. (Note 3) Thus, the demand for published financial information reduces. This feature of the Italian financial system can negatively affect value relevance. Ali and Hwang (2000) find that value relevance is lower for countries with bank-oriented financial systems as opposed to market-oriented ones.

Despite probable limitations on value relevance related to the legal and financial systems, benefits could derive from some events which are starting to change the Italian economic scenario. The recent and ongoing development of the Italian equity market is expected to have positive effects on value relevance. The demand for accounting information from market participants provides incentives for firm managers to increase the quality of financial reporting so to facilitate current and potential shareholders' investment decisions. This effect is supported by Nobes's (1998) suggestion that, unless a country is culturally dominated by another, its financial system is the main driver of its financial reporting practices. Table 1 documents the growth of the Italian Stock Exchange from 2001 to 2007 in terms of number of traded shares, market capitalization, and so on. This sizable enlargement is also attributable to the broad privatization process. The country experienced public offerings for about 125 million Euro, that was the second one among OCSE countries and the first one in Europe. Aganin and Volpin (2003) reported that the stock market capitalization grew to 70% of the Gross National Product in 2000 (in the 1980s it was lower than 8%) and that this increase was largely due to the listing of large corporations. Strikingly, this development of the stock market is not supported by Foreign Direct Investment (FDI). Tyrral, Woodward and Rakhimbekova (2007, p. 92) argue that IFRS are supposed to provide greater transparency in financial statements, which should attract increased FDI. This presumption is not supported by evidence in Italy; Table 1 reports no consistent increase in inward FDI during the recent years whereas outward FDI increases. (Note 4)

The limited size of the Italian equity market is historically associated with a lowly diffused ownership structure (La

Porta, Lopez-De-Silanes, & Shleifer, 1999) which has probably generated a weak demand for financial reporting. The ownership and control structure of Italian listed companies presents a high level of concentration and a limited number of shareholders, linked by either family ties or agreements of a contractual nature (i.e. shareholders' agreements), who are willing and able to wield power over the corporation (Melis, 2005, p. 479). Nevertheless, recent figures about ownership concentration among Italian listed companies (Table 1) highlight that the concentration of shares owned by the largest shareholder decreases from 2001 (42.2%) to 2007 (25.4%) and, consequently, the percentages concerning the other majority shareholders and the market increase from 9.2% to 14.4% and from 48.6% to 60.2% respectively. This change is supposed to influence positively value relevance since it implies that a growing number of investors are likely to increase the demand for high quality accounting information, forcing companies in this way to appropriately apply IFRS. Such an increase in the percentage of shares owned by the market has probably also been favoured by the Italian government's efforts towards the improvement of the minority shareholders' protection. It led to the introduction in 1998 of the "Draghi reform" (Legislative Decree No. 58/1998) and the reform of the governing saving in 2005 (Law No. 262/2005). Along the same line, the Italian Stock Exchange introduced in 1999 the "Preda code", a code of ethics aimed at promoting better corporate governance practices among listed firms.

The auditing service is an important enforcement mechanism affecting the quality of accounting information. Francis and Wang (2006) document that earnings quality increases for firms with Big 4 auditors, based on an international broad sample. They also report the market share of the Big 4 auditors in Italy is 93%. This is among the highest percentages in Europe and would positively affect the statistical association between stock prices and accounting numbers. Nevertheless, Italy is the only European country to have made auditor rotation compulsory. The "Draghi reform" requires that the auditing firm in Italy is appointed for three years and, after three appointments (i.e. nine years), the company is required to rotate its lead audit firm. It is not clear how this mandatory rotation could affect the value relevance of accounting information: a Bocconi University report (SDA Bocconi, 2002) highlights that audit firm rotation is detrimental to audit quality but has a positive effect on improving public confidence in the corporate sector. It concludes that auditor rotation produces a negative net effect on the shareholder's value.

Finally, the divergence between financial and tax accounting in Italy is supposed to influence positively value relevance. The literature supports this conjecture with empirical evidence (e.g. Joos & Lang, 1994; Ali & Hwang, 2000). The strong relationships between accounting and taxation in Italy were reduced by introducing the Legislative Decree No. 6/2003. It eliminated the commercial rule allowing fiscal items in the accounts with related disclosure in the notes. Also, the Legislative Decree No. 344/2003 eliminated the compulsory inclusion of some expenses in the income statement in order to obtain their deduction from tax accounts. These expenses can now be directly deducted from the annual tax return.

Summarizing, Italy has been experiencing several structural changes affecting its country-specific factors that can influence the IFRS implementation with respect to the value relevance of accounting information. In particular, the recent growth of the equity market generated by internal factors (privatizations, IPOs, etc.), the recent decrease in the ownership concentration, the Big 4 auditing concentration and the divergence between financial and tax accounting are all factors that should increase the degree to which firms comply with IFRS therefore positively influencing the quality of accounting information.

4. Research Design

4.1 Sample Selection and Descriptive Statistics

The empirical analysis is carried out on a sample of 960 firm-year observations concerning a cohort of 160 Italian companies trading their common shares on the Milan Stock Exchange (MSE) from 2002 to 2007.

Accounting data and market share prices were collected from the Italian Stock Exchange website. (Note 5) All the accounting data were submitted in accordance with I-GAAP from 2002 to 2004 (Note 6) and in accordance with IFRS from 2005 to 2007. In view of that, 480 firm-year observations derive from I-GAAP financial statements and 480 from IFRS ones, so that sampling observations are paired with respect to the pre-adoption period (2002-2004) and the post-adoption one (2005-2007).

The sampling scheme was designed with the aim of observing the same set of 160 companies longitudinally in time in order to preserve homogeneity of results. This means that, once a company is selected, all its data concerning the period 2002-2007 are analyzed. Only 19 replacements (over 960 firm-year observations) were made in the sample since accounting data for some companies were no longer available because of mergers and acquisitions. Companies of the same magnitude (in terms of net equity) and operating in the same macro-sector of the replaced ones were selected.

Sample units selection was based on a stratified sampling scheme to accomplish statistical representation with respect to the macro sectors of activity, as reported on the MSE website (Finance, Industry and Services), and the market capitalization. A company is selected if, following its inclusion in the sample: a) the sampling weight of its macro-sector does not exceed that of the corresponding macro-sector of the population for more than $\pm 5.00\%$; b) the null hypothesis

of the Kolmogorov-Smirnov (KS) test comparing the empirical distribution of the macro-sector market capitalization within the sample with that characterizing the population is not rejected.

A year-by-year comparison between the population weights and the sampling weights is shown in Table 2, which summarizes the distribution of the Italian listed companies among the three main sectors in the years 2002 to 2007. The proportion of sampling firms for each year is always between 69% and 75% and the weight differences between sample and population never exceed $\pm 5\%$. This means that the sample can be considered as representative either with respect to the proportion of selected firms or with respect to its internal composition.

Finally, Table 3 presents descriptive statistics and correlations for the sampling observations. Results reveal that earnings and book value are positively correlated with price and with each other over the entire period and that the correlation among the three variables increases after the adoption of IFRS. It is worth noticing that this increase is particularly large for the correlations between earnings and the other two variables.

4.2 Hypothesis Development

This study investigates the value relevance of I-GAAP and IFRS book value and earnings assuming that IFRS produce higher quality accounting information for investors in comparison to I-GAAP. This assumption derives from the different approach to the financial statement used by these two accounting regimes. Particularly, IFRS interpret the financial statement in a perspective way: the use of fair value measurements should reveal better the present company economic state and its future performances. As Barth et al. (2008, p. 5) argue, accounting amounts that reflect better a firm's underlying economics provide investors with information to aid them in making decisions. In this respect, IFRS can be considered more investor-oriented. On the contrary, I-GAAP are primarily oriented towards stakeholders, with special attention to creditors. Thus, they tend to prefer conservative accounting practices in order to preserve capital maintenance during the time.

These considerations introduce the first research question: *Does the value relevance of earnings and book value systematically change in Italy with the mandatory adoption of IFRS?* To answer this question the combined, relative and incremental value relevance analysis are carried out using price and return regression models.

The first expected result is that *the combined value relevance of book value and earnings is higher under IFRS*. To assess this result, the Ohlson (1995) model assuming a linear relationship between price, book value and earnings is used. The price-levels regression includes price per share as the dependent variable, and book value and earnings (both measured on a per share basis) as the explanatory variables:

$$P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 E_{it} + \varepsilon_{it} \quad (1)$$

where:

P_{it} is the price of a share of firm i six months after the fiscal year-end t ;

α_0 is the intercept term;

BV_{it} is the book value per share of firm i at the end of the year t ;

E_{it} is the earnings per share of firm i for time period $t-1$ to t ;

ε_{it} is the error term.

Fair value accounting is the major characteristic of IFRS. By incorporating economic events in a more timely fashion, it promises to make financial statements more informative for investors (Ball, 2006, p.12). Such a goal leads to the investigation of the individual ability of BV_{it} and E_{it} to reflect economic information incorporated in stock prices following IFRS; that is, to document on their relative value relevance. For this purpose, it is worthwhile remembering that IFRS are based on a conceptual framework similar to that of common-law countries. Prior empirical research (e.g. King & Langli, 1998; Arce & Mora, 2002) suggests that in these countries the relative value relevance of earnings seems to be higher than that of book value. Taking all these issues into account, the second expected result is that *the transition to IFRS positively affects the relative value relevance of both book value and earnings, but it could particularly increase that of earnings*. To determine the explanatory power that E_{it} and BV_{it} have for prices individually, equation (1) can be split into two models in order to consider the relative value relevance of BV_{it} and E_{it} respectively (Note 7):

$$P_{it} = \beta_0 + \beta_1 BV_{it} + \varepsilon_{it}^{BV} \quad (2)$$

$$P_{it} = \gamma_0 + \gamma_1 E_{it} + \varepsilon_{it}^E \quad (3)$$

The relative value relevance of E_{it} and BV_{it} is measured by the adjusted R^2 s of the corresponding models (2) and (3). Comparing the value of adjusted R^2 deriving from model (2) with that of model (3), it is possible to understand if BV_{it} is more value relevant than E_{it} , or vice versa. This study also applies the Vuong (1989) test to evaluate the magnitude of the differences between these adjusted R^2 s.

The empirical analysis also investigates if book value and earnings provide different additional information to investors by measuring their incremental explanatory power. Denoting the adjusted R^2 's coefficients from equations (1) to (3) as R^2_{1*} , R^2_{2*} and R^2_{3*} respectively, the total explanatory power of the model (1) is decomposed into three parts: i) the incremental explanatory power of book value: $R^2_{BV} = R^2_{1*} - R^2_{3*}$; ii) the incremental explanatory power of earnings: $R^2_E = R^2_{1*} - R^2_{2*}$; iii) the explanatory power common to both earnings and book value: $R^2_C = R^2_{1*} - (R^2_{BV} - R^2_E)$. (Note 8)

Furthermore, the research considers the strength of the relationship between earnings and stock returns as a proxy for value relevance. To evaluate whether *the ability of earnings levels and earnings changes in explaining stock returns improves under IFRS* (third expected result), the return regression model proposed by Easton and Harris (1991) is considered:

$$r_{it} = \gamma_0 + \gamma_1 [E_{it}/P_{it-1}] + \gamma_2 [\Delta E_{it}/P_{it-1}] + \varepsilon_{it}^r \quad (4)$$

where:

r_{it} is the dividend adjusted stock market return of firm i six months after the fiscal year-end t ;
 E_{it}/P_{it-1} is the earnings per share of year t deflated by the stock price in year $t-1$ observed for firm i ;
 $\Delta E_{it}/P_{it-1}$ is the change in the earnings per share from years $t-1$ to t deflated by the stock price in year $t-1$ observed for firm i .

The value relevance of both E_{it}/P_{it-1} and $\Delta E_{it}/P_{it-1}$ are measured by the adjusted R^2 of model (4). Again, following the R^2 decomposition introduced for model (1), their incremental value relevance can be measured in the same way decomposing the R^2 of model (4). Generally, model (4) is considered to be less sensitive to scale effects compared to model (1). See Easton (1998, p. 238).

When estimating price and return regression models, pooled data of the pre-adoption period (2002-2004) are contrasted with those of the post-adoption one (2005-2007) and differences in the value relevance are evaluated through the Chow (1960) test.

Finally, consistent with the view of Ballas and Hevas (2005) who predict and document that industry classification is an important source of variation in value relevance of earnings and book value, a sectoral analysis is performed to answer the second research question: *How does the IFRS adoption impact the value relevance in the different sectors?* The sectoral analysis investigates how value relevance changes in the three different macro-sectors (Finance, Industry and Services) from the pre-adoption period to the post-adoption one. Models (1) to (4) are applied separately for each macro-sector and for the two different periods.

5. Empirical Results and Inferences

This section summarizes the results obtained when applying models (1) to (4) to the observed sample of Italian firms. When estimating each model, data are standardized to obtain standardized regression coefficients. In addition, to control for the effects of extreme values, the 5% of observations located in the two tails of the empirical distributions of either earnings and book value are removed from the analysis, since they are identified as outliers. Consistent with prior research (such as Collins et al., 1997), firms with negative book value (under either I-GAAP or IFRS) are deleted. Finally, the White (1980) corrected t -statistics are used when testing significance of regression coefficients to control for heteroskedasticity.

5.1 Value Relevance of Earnings and Book Value under IFRS and I-GAAP

Table 4 shows a comparison among the results of the models (1) to (4) for the I-GAAP data (2002-2004) and for the IFRS data (2005-2007).

Price regression results in Panel A suggest that IFRS adoption increases the combined and the relative value relevance of accounting information, since R^2_{1*} , R^2_{2*} and R^2_{3*} under IFRS are higher than those under I-GAAP. These findings confirm the prediction that *the IFRS adoption causes an increase in the combined value relevance* and that *the increase in the relative value relevance is more pronounced for earnings* (from 18% to 47%) *than for book value* (from 46% to 50%). Consistent with these findings, when comparing the results of models (2) and (3) in each period, adjusted R^2 's and the Vuong test indicate that BV_{it} is relatively more relevant than E_{it} under I-GAAP but not under IFRS; this is because the value of the Z-statistic under IFRS is not significant at conventional levels. As for the incremental value relevance, results show that the incremental contribution to equity valuation of E_{it} (measured by R^2_E) increases from 2% to 10%. This would mean that income statement information is starting to gain importance for investors' valuation mechanisms and that firms' profitability is influencing investment decisions. Contrariwise, the incremental information provided to investors by the balance sheet seems to reduce (R^2_{BV} decreases from 30% to 13%).

In general, the results suggest that the IFRS adoption induces systematic differences in the value relevance of accounting information in the post-adoption period compared to the pre-adoption one. The Chow tests always reject the null hypothesis of no difference in value relevance between the pre-adoption and the post-adoption periods.

Return regression outcomes on pooled data are reported in Panel B. They show an increase of the statistical association between earnings and stock returns in the post-adoption period with respect to the pre-adoption one (from 5% to 10%). Under IFRS, earnings changes seem to be more relevant than under I-GAAP. Their incremental value relevance equals 10% in the post-adoption period, being higher than that of earnings levels (1%). Thus, IFRS earnings appear as informative for investors and potentially more able to predict future price changes.

5.2 Sectoral Analysis

Table 5 reports the results of the pooled (price and return) regressions for the Finance, Industry and Services sectors.

As for companies operating in the Finance sector, price regression results (Panel A) highlight that the combined value relevance increases consistently ($R^2_{I^*}$ increases from 0.50 to 0.73) as well as the relative value relevance of E_{it} ($R^2_{3^*}$ increases from 0.41 to 0.73); whereas, the relative value relevance of BV_{it} measured by $R^2_{2^*}$ decreases slightly from 0.46 to 0.44. When comparing the relative value relevance of E_{it} with that of BV_{it} , a clear superiority of E_{it} over BV_{it} under IFRS emerges. The significance of the Vuong's Z-statistics provides strong evidence of this superiority. In addition, the results of the incremental value relevance indicate that the contribution provided to equity valuation by E_{it} increases consistently under IFRS (R^2_E increases from 0.04 to 0.29) whereas it reduces to zero for BV_{it} (R^2_{BV} decreases from 0.08 to zero). Thus, financial companies show that income statement accounting information under IFRS is more relevant for investors than that of the balance sheet, probably because they make extensive use of fair value measurements. This kind of result is consistent with previous studies about the use of fair value estimates of investment securities in banks (Barth, Beaver, & Landsman, 1996; Eccher, Ramesh, & Thiagarajan, 1996).

The results of the empirical analysis of this sector could have also been affected by the options offered by IFRS 1 and by the role that the national supervisory authorities have played in the IFRS implementation process. Firstly, it should be noted that 33 of the 50 selected financial companies exercised the option allowed by IFRS 1 to not retrospectively apply IAS 32 and IAS 39 on 1 January 2004. For these companies, the effects on accounting numbers deriving from the first adoption of these two standards were detectable in the opening balance sheet on 1 January 2005, in which the changes in the net equity attributable to IAS 32 and IAS 39 were separately reported. It is likely that the magnitude of these changes and their separate disclosure could be among the reasons for the high increase of value relevance for financial companies in 2005. (Note 9) Secondly, the Italian supervisory authorities have wielded a strict regulatory power over financial companies aimed at improving the enforcement of IFRS. Financial statement formats and their filing rules have been introduced for banks, insurance companies, listed firms and financial companies issuing financial instruments widely distributed among the public. As for the implementation of fair value accounting, the Bank of Italy has held a stringent control over banks to limit volatility in their financial statements. Such a control is based on the "Guidelines on prudential filters for regulatory capital" introduced by the Committee of European Banking Supervisors (CEBS) to preserve the definition and maintain the quality of regulatory capital. (Note 10)

Different conclusions can be drawn for the Industry sector, where the combined value relevance remains substantially unchanged when moving from I-GAAP to IFRS, but changes are detectable in the relative value relevance. Under I-GAAP, BV_{it} is relatively more value relevant than E_{it} , as showed by the Vuong's Z-statistic. This result probably depends on conservative practices and income smoothing. However, under IFRS the superiority of BV_{it} over E_{it} is less marked, as the relative value relevance of E_{it} increases considerably with the transition to IFRS ($R^2_{3^*}$ increases from 0.13 to 0.34) whereas that of BV_{it} decreases from 0.57 to 0.54. Incremental value relevance results also show that BV_{it} provides consistent additional information to equity valuation under I-GAAP; this result is also confirmed under IFRS, although R^2_{BV} decreases from 0.47 to 0.27.

As the Finance sector, services companies experience a consistent increase in the combined value relevance in the post-adoption period, together with an increase in the relative and incremental value relevance of E_{it} . Consistent with the results of the previous sectors, the relative value relevance of BV_{it} decreases.

Finally, the empirical analysis investigates if the value relevance of earnings levels and earnings changes is sensitive to the activity sector (Panel B). The results are in line with the conclusions drawn from the price regression models. IFRS adoption increases the value relevance of earnings, particularly for the Finance and Services sectors, whose companies are probably the major fair value users. Most of the total variation of returns in the Services and Finance sectors is explained by earnings changes, probably because in these sectors earnings are most sensitive to the changes induced by IFRS fair value accounting.

Overall, the results of the sectoral analysis indicate that IFRS adoption has a different impact on the value relevance of accounting numbers in the three sectors, justifying the explorative purpose of the second research question. The increase in the combined value relevance for financial and services companies indicates that their accounting numbers are particularly relevant and informative for investors. Instead, the slight increase of value relevance in the Industry sector probably depends on the survival of conservative practices that reduce the effectiveness of the IFRS implementation towards the disclosure of more useful information for investors.

6. Concluding Remarks

Following the recent IFRS mandatory adoption in Europe, this paper studies the consequences of the IFRS-based financial statement presentation on the value relevance of accounting information in Italy. The aim of this research is to investigate how the mandatory adoption of IFRS has impacted on the value relevance of book value of equity and earnings, and to assess whether it increases the quality of accounting information for investors. At the same time, since political and economic forces profoundly affect reporting practice (Ball et al., 2003, p. 236), changes in the country-specific factors that may improve the IFRS implementation are also considered.

Research results are coherent with the expectations. Price regression outcomes show that book value of equity and earnings under IFRS are jointly and systematically more value relevant than the corresponding I-GAAP amounts. In addition, it emerges that earnings increase their relative value relevance more than book value of equity when moving to IFRS, despite higher relative value relevance of book value of equity under I-GAAP. Return regression results also point out that earnings changes increase their explanatory power during the IFRS adoption period. Finally, the sectoral analysis highlights that IFRS adoption particularly increases the value relevance for financial companies, and that firms operating in the Services sector also experience a consistent increase in the quality of accounting information. On the contrary, value relevance seems to remain almost unchanged for the Industry sector firms. These different results would stimulate the debate about whether accounting regulation should be more industry-oriented.

Nevertheless, as reported in literature, accounting quality is also a function of firms' reporting incentives created by market and political factors. In view of that, this study has documented that the recent growth of the equity market, the ongoing company privatization process, the decrease in ownership concentration as well as the divergence between accounting and taxation are all factors that might have contributed to strengthen IFRS implementation therefore positively influencing the accounting information quality.

This paper has tried to continue the research in the area of adopting IFRS. The results may be relevant to international regulators and institutions involved in the accounting harmonization process, either because Italian listed companies were required to apply IFRS in individual accounts, or because the results provide an example of the impact which IFRS have on a European country characterized by regulatory rigidity and a legalistic outlook. Of course, it is not possible to draw definitive inferences from these results since IFRS are observable only for three years. However, the empirical analysis shows solid concerns in favour of their future consolidation that, as previously discussed, will also depend on the full coordination between financial reporting practice and regulatory environment.

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Notes

Note 1. Hereinafter, the term "IFRS" is used to refer to both the accounting standards issued by IASB and the International Accounting Standards (IAS), issued by the International Accounting Standards Committee (IASC), which was the IASB's predecessor.

Note 2. IASC Foundation Constitution, Part A, para. 2. [Online] Available: <http://www.iasb.org/NR/rdonlyres/7EDF6B63-8A7A-4741-8C63-1EDD10A50E55/0/Constitutionnewcover.pdf> (25 August, 2009)

Note 3. Bianchi and Bianco (2007, p. 19) document that the weighted average share of banks in Italian listed companies was 4.7% in 2006, whereas it was 6.1% in Germany and 9.6% in Spain.

Note 4. The motivations about little increase in FDI are reported in OECD (2006, p. 9).

Note 5. <http://www.borsaitalia.it>

Note 6. The term "Generally Accepted Accounting Principles" (GAAP) is not formally defined in Italy. Nevertheless, the term "Italian GAAP" is used throughout the paper and abbreviated with the acronym I-GAAP to simplify terminology.

Note 7. This decomposition has been used in Collins, Maydew and Weiss (1997), and Arce and Mora (2002).

Note 8. The same approach to incremental value relevance analysis has been used by Collins et al. (1997). King and Langli (1998), Francis and Schipper (1999) and Arce and Mora (2002).

Note 9. This increase has been empirically tested by restricting the analysis to the 50 financial companies and by

measuring their combined value relevance with respect to the 2004 IFRS-restated financial statements, as required by IFRS 1, and to the 2005 financial statements. Since the R^2_{j*} increases from 23% to 87%, it seems that empirical evidence supports this belief, although this finding cannot be generalized because of the reduced sample size.

Note 10. See the CEBS website www.c-ebs.org/

Table 1. The evolution of equity market, ownership concentration and foreign direct investment in Italy during the period 2001-2007

Year	2001	2002	2003	2004	2005	2006	2007
<i>Equity Market</i>							
N. Listed companies	294	295	279	278	282	311	344
N. IPO	18	14	10	10	19	46	49
N. Takeover bids	20	22	32	19	23	15	22
Market Capitalization (% GDP)	47.4	35.4	36.5	41.8	47.7	52.8	48.0
Market Capitalization (€ mil.)	592 319	457 992	487 446	580 881	676 606	778 501	733 614
Overall trading activity (€ mil.)	658 042	633 659	679 017	732 592	954 796	1 145 650	1 574 595
Average daily trading activity (€ mil.)	2 611	2 515	2 695	2 851	3 730	4 510	6 248
Turnover velocity (% of Mkt. Cap.)	93.3	120.7	143.6	137.1	151.9	157.5	208.3
<i>Foreign Direct Investment</i>							
FDI flows inward (€ mil.)	11 037	10 854	12 250	12 549	14 904	12 996	11 709
FDI flows outward (€ mil.)	15 926	12 778	6 769	14 375	29 605	31 185	59 194
<i>Ownership Concentration</i>							
% shares owned by the largest shareholder	42.2	40.7	33.5	32.7	28.6	27.5	25.4
% shares owned by other majority shareholders	9.2	8.0	11.6	13.0	15.5	15.2	14.4
% shares owned by market	48.6	51.2	54.9	54.3	55.9	57.3	60.2

Sources. *Equity market*: Borsa Italiana – Italian Stock Exchange (2008); *Foreign Direct Investment*: United Nations Conference on Trade and Development – UNCTAD (2008). The data cover all types of financial flows affecting equity capital, namely: listed voting stocks (shares), unlisted voting stocks, other non-voting stocks (including preferred shares), and non-cash acquisitions of equity, such as through the provision of capital equipment. They also include bonds and money market instruments, loans, financial leases and trade credits as well as the purchase and sale of land and buildings in Italy/abroad by non-resident/resident enterprises and individuals; *Ownership Concentration*: Commissione Nazionale per le Società e la Borsa (CONSOB) – Italian Stock Exchange Regulator (2008).

Table 2. The distribution of the Italian listed companies in the three main sectors from 2002 to 2007 and a comparison between the population weights and the sampling weights

Main Sector	2002		2003		2004		2005		2006		2007	
	<i>Pop. W.</i>	<i>W. diff.</i>										
Finance	36%	-5%	35%	-4%	33%	-2%	35%	-4%	35%	-4%	32%	-1%
Industry	45%	1%	45%	1%	45%	1%	44%	2%	42%	4%	44%	2%
Services	19%	4%	20%	3%	22%	1%	21%	2%	23%	0%	24%	-1%
Total	100%		100%		100%		100%		100%		100%	
N. listed companies	232		225		224		216		220		228	
Sampling companies (%)	69.0%		71.1%		71.4%		74.1%		72.7%		70.2%	

Notes. Data have been collected from the Italian Stock Exchange website (www.borsaitalia.it). *Pop. W.* is the proportion of Italian listed companies belonging to the three sectors and *W.diff.* is the difference between *Pop. W.* and the proportion of sampling companies belonging to a sector.

Table 3. Descriptive statistics and correlation among variables

<i>Panel A: descriptive statistics and correlation matrix for the period (2002-2007) N=852</i>					
<i>Descriptive Statistics</i>					
Variable	Mean	Median	Standard deviation	Min.	Max.
<i>Price (P)</i>	6.49	3.96	6.85	0.26	35.01
<i>Book Value (BV)</i>	3.60	2.30	3.68	0.02	21.11
<i>Earnings (E)</i>	0.31	0.18	0.56	-1.42	2.78
<i>Correlation matrix</i>					
	<i>Price (P)</i>		<i>Book Value (BV)</i>		<i>Earnings (E)</i>
<i>Price (P)</i>	1.000				
<i>Book Value (BV)</i>	0.694 ***		1.000		
<i>Earnings (E)</i>	0.612 ***		0.508 ***		1.000
<i>Panel B: descriptive statistics and correlation matrix for the period (2002-2004) N=432</i>					
<i>Descriptive Statistics</i>					
Variable	Mean	Median	Standard deviation	Min.	Max.
<i>Price (P)</i>	5.42	3.33	5.56	0.26	29.2
<i>Book Value (BV)</i>	3.36	2.17	3.33	0.08	18.46
<i>Earnings (E)</i>	0.21	0.12	0.47	-1.61	2.10
<i>Correlation matrix</i>					
	<i>Price (P)</i>		<i>Book Value (BV)</i>		<i>Earnings (E)</i>
<i>Price (P)</i>	1.000				
<i>Book Value (BV)</i>	0.705***		1.000		
<i>Earnings (E)</i>	0.491***		0.441***		1.000
<i>Panel C: descriptive statistics and correlation matrix for the period (2005-2007) N=422</i>					
<i>Descriptive Statistics</i>					
Variable	Mean	Median	Standard deviation	Min.	Max.
<i>Price (P)</i>	7.70	5.11	7.90	0.26	36.99
<i>Book Value (BV)</i>	3.84	2.46	4.03	0.08	22.38
<i>Earnings (E)</i>	0.44	0.27	0.64	-1.20	3.29
<i>Correlation matrix</i>					
	<i>Price (P)</i>		<i>Book Value (BV)</i>		<i>Earnings (E)</i>
<i>Price (P)</i>	1.000				
<i>Book Value (BV)</i>	0.713***		1.000		
<i>Earnings (E)</i>	0.683***		0.585***		1.000

Notes. P is the price per share of firm i at the end of year t , E is the earnings per share of firm i at the year-end t , and BV is the book value per share of firm i at the year-end t . The symbols *, **, *** indicate the statistical significance of the test for the association between paired samples, using Pearson's product moment correlation coefficient, at 0.10, 0.05, and 0.01, respectively.

Table 4. Pooled regression results

Panel A: Price regression models

Models:

(1) $P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 E_{it} + \varepsilon_{it}$;

(2) $P_{it} = \beta_0 + \beta_1 BV_{it} + \varepsilon_{it}^{BV}$;

(3) $P_{it} = \gamma_0 + \gamma_1 E_{it} + \varepsilon_{it}^E$

Year	N	$\hat{\alpha}_1$	$\hat{\alpha}_2$	R^2_{1*}	$\hat{\beta}_1$	R^2_{2*}	$\hat{\delta}_1$	R^2_{3*}	Vuong's statistic	R^2_{BV}	R^2_E
02-04 I-GAAP	442	0.18 10.16***	0.16 3.07***	0.48	0.20 13.17***	0.46	0.42 6.36***	0.18	3.49***	0.30	0.02
05-07 IFRS	437	0.11 6.28***	0.40 6.75***	0.60	0.17 11.36***	0.50	0.68 11.81***	0.47	0.48	0.13	0.10
Pooled	882	0.14 10.89***	0.32 7.69***	0.56	0.18 16.08***	0.48	0.60 12.97***	0.36	2.28**	0.20	0.07
Chow's F statistic				10.36***	4.41**		11.07***				

Panel B: Return regression models

Model: (4) $r_{it} = \gamma_0 + \gamma_1 [E_{it}/P_{it-1}] + \gamma_2 [\Delta E_{it}/P_{it-1}] + \varepsilon_{it}^r$

Year	N	$\hat{\gamma}_1$	$\hat{\gamma}_2$	R^2	ΔR^2 due to $\hat{\gamma}_1$	ΔR^2 due to $\hat{\gamma}_2$
02-04 I-GAAP	442	0.24 4.81***	-0.03 -0.44	0.05	0.05	0.00
05-06 IFRS	444	-0.07 -1.53	0.33 6.30***	0.10	0.01	0.10
Pooled	886	0.02 0.49	0.18 2.84***	0.03	0.00	0.03
Chow's F statistic				12.03***		

Notes. N is the number of observations used to estimate each model. The first number in each cell reports the standardized regression coefficient, whereas the second is the value of the White-corrected t -statistic to test whether the regression coefficient is equal to zero. The symbols *, **, *** indicate the statistical significance of the test at 0.10, 0.05, and 0.01, respectively.

In Panel A, P_{it} is the price of a share for firm i six months after the fiscal year-end t ; BV_{it} is the book value per share of firm i at the end of the year t ; E_{it} denotes the earnings per share for firm i for time period $t-1$ to t . R^2_{1*} , R^2_{2*} and R^2_{3*} are the adjusted R^2 's. Vuong's test Z statistic measures the significance of the relative value relevance of model (2) over model (3). $R^2_{BV} = R^2_{1*} - R^2_{3*}$ and $R^2_E = R^2_{1*} - R^2_{2*}$ measure the incremental value relevance of BV and E respectively.

In Panel B, r_{it} is the dividend adjusted stock market return of firm i six months after the fiscal year-end t ; E_{it}/P_{it-1} is the earnings per share of year t deflated by the stock price in year $t-1$ observed for firm i ; $\Delta E_{it}/P_{it-1}$ is the change in the earnings per share from years $t-1$ to t deflated by the stock price in year $t-1$ observed for firm i .

Table 5. Pooled regression results comparing the pre-adoption period with the post-adoption one in the three macro-sectors

Panel A: Price regression models

Models: $P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 E_{it} + \varepsilon_{it}$; $P_{it} = \beta_0 + \beta_1 BV_{it} + \varepsilon_{it}^{BV}$; $P_{it} = \gamma_0 + \gamma_1 E_{it} + \varepsilon_{it}^E$

<i>Year</i>	<i>N</i>	$\hat{\alpha}_1$	$\hat{\alpha}_2$	R^2_{1*}	$\hat{\beta}_1$	R^2_{2*}	$\hat{\delta}_1$	R^2_{3*}	<i>Vuong's statistic</i>	R^2_{BV}	R^2_E
Finance Sector											
02-04 _{I-GAAP}	136	0.13 3.25***	0.30 1.94*	0.50	0.19 9.10***	0.46	0.65 7.96***	0.41	0.54	0.08	0.04
05-07 _{IFRS}	134	0.01 0.37	0.82 4.16***	0.73	0.14 5.00***	0.44	0.86 6.70***	0.73	-2.15**	0.00	0.29
Pooled	273	0.05 2.17**	0.64 4.98***	0.66	0.18 9.50***	0.45	0.80 11.64***	0.64	-1.47*	0.02	0.18
<i>Chow's F statistic</i>				7.09***	3.91**		3.53**				
Industry Sector											
02-04 _{I-GAAP}	201	0.19 8.94***	0.20 3.32***	0.60	0.21 9.85***	0.57	0.36 3.37***	0.13	4.25***	0.47	0.03
05-07 _{IFRS}	198	0.13 7.85***	0.31 4.83***	0.61	0.16 9.16***	0.54	0.59 6.00***	0.34	1.93**	0.27	0.07
Pooled	403	0.15 10.60***	0.21 3.47***	0.57	0.17 12.25***	0.55	0.44 4.98***	0.19	3.82***	0.38	0.04
<i>Chow's F statistic</i>				5.38***	4.49**		3.20**				
Service Sector											
02-04 _{I-GAAP}	99	0.19 7.01***	0.33 2.70**	0.35	0.21 5.48***	0.25	0.39 2.41**	0.15	0.67	0.21	0.10
05-07 _{IFRS}	98	0.14 3.59***	0.58 4.97***	0.52	0.23 3.21***	0.22	0.67 5.50***	0.45	-1.78**	0.07	0.30
Pooled	198	0.20 5.23***	0.45 5.13***	0.43	0.23 5.33***	0.23	0.50 4.97***	0.25	-0.15	0.18	0.20
<i>Chow's F statistic</i>				2.32*	0.06		3.84**				

Panel B: Return regression models

Model: $r_{it} = \gamma_0 + \gamma_1 [E_{it}/P_{it-1}] + \gamma_2 [\Delta E_{it}/P_{it-1}] + \varepsilon_{it}^r$						
Year	N	$\hat{\gamma}_1$	$\hat{\gamma}_2$	R^2	ΔR^2 due to $\hat{\gamma}_1$	ΔR^2 due to $\hat{\gamma}_2$
Finance Sector						
02-04 _{I-GAAP}	137	0.18 1.74	-0.14 -0.96	0.02	0.02	0.01
05-07 _{IFRS}	138	-0.30 -3.07***	0.57 3.38***	0.27	0.07	0.27
Pooled	274	-0.13 -1.65	0.23 2.77**	0.04	0.01	0.04
<i>Chow's F statistic</i>				7.47***		
Industry Sector						
02-04 _{I-GAAP}	200	-0.25 3.67***	0.07 0.75	0.08	0.04	0.00
05-07 _{IFRS}	201	0.00 0.07	0.14 1.61	0.01	0.00	0.01
Pooled	404	0.00 1.90*	0.07 1.32	0.02	0.00	0.00
<i>Chow's F statistic</i>				4.61**		
Services Sector						
02-04 _{I-GAAP}	102	0.08 0.67	-0.02 -0.12	0.00	-0.01	-0.01
05-07 _{IFRS}	103	-0.24 -1.79*	0.46 3.14***	0.21	-0.05	0.20
Pooled	204	-0.05 -0.48	0.26 2.02*	0.05	0.00	0.06
<i>Chow's F statistic</i>				3.99***		

Notes. N is the number of observations used to estimate each model. The first number in each cell reports the standardized regression coefficient, whereas the second is the value of the White-corrected t -statistic to test whether the regression coefficient is equal to zero. The symbols *, **, *** indicate the statistical significance of the test at 0.10, 0.05, and 0.01, respectively.

In Panel A, P_{it} is the price of a share for firm i six months after the fiscal year-end t ; BV_{it} is the book value per share of firm i at the end of the year t ; E_{it} denotes the earnings per share for firm i for time period $t-1$ to t . R^2_{1*} , R^2_{2*} and R^2_{3*} are the adjusted R^2 's. Vuong's test Z statistic measures the significance of the relative value relevance of model (2) over model (3). $R^2_{BV} = R^2_{1*} - R^2_{3*}$ and $R^2_E = R^2_{1*} - R^2_{2*}$ measure the incremental value relevance of BV and E respectively.

In Panel B, r_i is the dividend adjusted stock market return of firm i six months after the fiscal year-end t ; E_{it}/P_{it-1} is the earnings per share of year t deflated by the stock price in year $t-1$ observed for firm i ; $\Delta E_{it}/P_{it-1}$ is the change in the earnings per share from years $t-1$ to t deflated by the stock price in year $t-1$ observed for firm i .



The Value Relevance of Earnings and Book Value Using an Option-Style Equity Valuation Model: Evidence from Korea

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Abstract

The purpose of this paper is to investigate the value relevance of earnings and book value in security prices from 1982 to 2001 in Korean stock market. The study examines whether the accounting earnings and book value have a nonlinear relationship to equity value by using an option-style model of equity. The study uses an option-style model of equity value to test the hypothesis that earnings and book value have a nonlinear relationship to equity value by examining firms listed in the Korean stock market (7,928 firm-year observations). To this end, the paper performs analyses for all samples and across subsamples divided into loss firms and profit firms, and observes changes in relationships over the past twenty years. This paper reports three sets of findings. First, the value-relevance of accounting earnings differs between loss firms and profit firms. Second, Korean firms differently acknowledge accounting earnings and book value for equity valuation. Third, an option-style valuation model can explain the nonlinear relationship between equity value and accounting earnings/book value. The important contribution of the study is to show the nonlinear relationship between equity value and book value in the Korean stock market. And the empirical results of the paper reinforces the adoption of a new equity valuation model that explicitly recognized the option that firms have to adapt their resources to the alternative uses available to them.

Keywords: Accounting earnings, Book value, Value Relevance, Option-style model of equity value

1. Introduction

The paper investigates the value relevance of earnings and book value in security prices from 1982 to 2001. The study examines whether the accounting earnings and book value have a nonlinear relationship to equity value by using an option-style model of equity. The paper is motivated by different empirical results of studies on value relevance of earnings and book value. The study addresses two research questions; first, is equity value a linear function of earnings? Second, is equity value a linear function of book value? Prior studies (Hayn, 1995; Burgstahler and Dichev, 1997a; Zhang, 2000; Chen and Zhang, 2002) give a direct motivation to this paper. Since Ball and Brown's (1968) study, many others have demonstrated that equity value is related to earnings and book value (Lev, 1989; Ou and Penman, 1989; Barth, 1991; Easton and Harris, 1991; Lev and Thiagarajan, 1993; Penman, 1991; Ou and Penman, 1993; Dechow, 1994; Ohlson, 1995; Feltham and Ohlson, 1995; Penman, 1996; Barth and Kallapur, 1996; Collins et. al., 1997; Easton, 1999). These studies mainly rely on the equity valuation model, assuming the value of equity is a linear function of earnings and book value.

In the 1990s, new researches raise questions about assuming a linear relationship between equity value and earnings. For example, Hayn (1995) shows that earnings of loss firms are less informative about future prospects than profit firms because shareholders have a liquidation option. These results suggest that a relationship between equity value and earnings might not be a linear function across profit and loss firms.

Jan and Ou (1994) also document a nonlinear equity value-earnings relationship across profit and loss firms. More strikingly, they find that since firms have the option to liquidate, the relationship between earnings and equity value is reliably negative for loss firms: the more negative a firm's earnings per share, the higher its equity value. These studies do not, however, suggest that a new equity accounting information model can reflect the option of liquidating. Burgstahler and Dichev (1997a) develop a new equity valuation model that explicitly recognizes the option that firms have to adapt their resources to the alternative uses available to them. They contend that the *ex ante* value of the option should be reflected in equity value, and find that equity value is a nonlinear function of both earnings and book value across firms. They divide their sample into three even groups to test nonlinear function but are unable to determine the

inflection point. Zhang (2000) and Chen and Zhang (2002) continue this research, also documenting a nonlinear relationship between equity value and earnings using an option-style model of equity value. In Korea, however, research about option-style valuation models and its relevance to earnings, book value, and equity value is still in the early stages, as demonstrated by the brevity of this paper's bibliography.

The study uses an option-style model of equity value to test the hypothesis that earnings and book value have a nonlinear relationship to equity value by examining firms listed in the Korean stock market. To this end, this study uses the following three tests. First, the paper investigates whether a linear relationship exists between equity value and earnings for firms listed in Korean stock markets. For this test the study uses a conventional simple linear regression model of equity value and earnings. Second, the paper uses a multiple linear regression model of equity value and earnings/book value to investigate relative value-relevance between earnings and book value. Third, the study uses a piecewise linear regression model to calculate the nonlinear relationship between equity value and earnings/book value.

The paper performs analyses for all samples and across subsamples divided into loss firms and profit firms, and observes changes in relationships over the past twenty years. For the third analysis, the study divides the sample into loss firms, profit firms, and earnings management firms. This paper reports three sets of findings. First, the value-relevance of accounting earnings differs between loss firms and profit firms. Second, Korean firms differently acknowledge accounting earnings and book value for equity valuation. Third, an option-style valuation model can explain the nonlinear relationship between equity value and accounting earnings/book value.

The rest of the paper proceeds as follows. Section 2 outlines previous recent studies that investigate the value-relevance of earnings and book values. Section 3 discusses the hypothesis and valuation models used in this study. Section 4 discusses the results of this study regarding the linear/nonlinear relationship between equity value and earnings/book value from 1982 to 2001, While Section 5 concludes.

2. Literature Review

After Ball and Brown's (1968) research, many studies have examined the relevance of accounting information and firms' equity. Most studies conclude that earnings contain information and that a linear relationship exists between accounting information and a firm's equity (Lev, 1989; Ou and Penman, 1989; Barth, 1991; Easton and Harris, 1991; Lev and Thiagarajan, 1993; Penman, 1991; Ou and Penman, 1993; Dechow, 1994; Ohlson, 1995; Feltham and Ohlson, 1995; Penman, 1996; Barth and Kallapur, 1996; Collins, Maydew and Weiss, 1997; Easton, 1999). However, compelling studies performed in the 1990s raise questions about this supposed linear relationship between a firm's earnings and equity. These questions arise mainly because of the sudden change in the world economic environment in the 1990s. This sudden change cause some professionals and researchers to recognize that accounting information has little relevance to the evaluation of a firm's equity value.

These recent researches can be classified as studies on the decreased relevance of earnings in equity valuation, studies on the increased relevance of book value in equity valuation, and studies on the relevance of earnings in equity valuation.

2.1 Studies on the Decreased Relevance of Earnings in Equity Valuation

Many studies of financial market performed 1990s have focused on the relationship between accounting information and stock price. This type of researches has reported a positive and linear relationship between accounting information and stock price. Hayn (1995), Amir and Lev (1996), Lev (1989), and Basu (1997) criticize these results.

Hayn (1995) separate firms into loss firms (those reporting losses) and profit firms (those reporting profits). She finds a much weaker cross-sectional return-earnings relationship for loss firms than for profit firms, and claims this weaker relationship is based on the common market perception of losses being transitory. Hayn (1995) suggests that the price-earnings relationship might not be homogeneous across profit and loss firms. Hayn's (1995) study is very important because it raises an objection to the assumption of linearity that has been commonly recognized for over three decades. Amir and Lev (1996) examine the value-relevance of independent cellular companies' financial and nonfinancial information to investors. They found that, on a stand-alone basis, financial information (including earnings, book values, and cash flows) is largely irrelevant to stock prices. Lev (1989) suggests that while investors apparently use earnings, the usefulness of earnings is rather limited, indicated by the weak and temporally unstable contemporaneous correlation between stock returns and earnings and by the very modest contribution earnings make to predicting stock prices and returns. Basu (1997) studies the conservatism principle and the asymmetric timeliness of earnings. He finds that because of accounting's definition of conservatism, contemporaneous sensitivity of earnings exhibited less persistence to negative returns in terms of an earnings-return relationship.

2.2 Studies on the Increased Relevance of Book Value in Equity Valuation

In the 1990s, researchers published results opposing previous research; they explained declining value-relevance of earnings based on increased value-relevance of book value (Penman, 1991; Ou and Penman, 1993; Kim, 1994; Collins

et al., 1997; Barth et al., 1998). Penman (1991) evaluates the accounting rate of return (ROE) as both a profitability indicator and a risk indicator. Using ROE for American firms over the 18-year period from 1969 to 1986, he finds a positive relationship between stock rates-of-return and ROE. Ou and Penman (1993) try to apply Ohlson's (1995) valuation model to find an accounting variable that explains the relationship among earnings, dividends, and stock prices. They find that apart from ROE, financial statement variables have little relevance to stock prices. They also find that appropriate division of data by financial distinction results in a higher return of a stock price's incremental explanatory power.

Collins et al. (1997) investigate systematic changes in the value-relevance of earnings and book values over time and produce three primary findings. First, contrary to claims in the professional literature, the combined value-relevance of earnings and book values have not declined over the previous 40 years, and in fact appeared to have increased slightly. Second, while the incremental value-relevance of 'bottom line' earnings has declined, it has been replaced by an increasing relevance of book values. Finally, he finds that much of the shift in value-relevance from earnings to book values could be explained by an increasing frequency and magnitude of one-time items, an increasing frequency of negative earnings, and changes in average firm size and intangible intensity across time.

Barth et al. (1998) test predictions that pricing multiples on, and incremental explanatory power of, book value (net income) would increase (decrease) as financial health decreases. Their empirical results are largely based on inclusion of controls for industry, size, return-on-equity, and volatility of equity returns. They find that equity book value and net income multiples and incremental explanatory power varies predictably across three sample industries that they have selected based on the likelihood of unrecognized intangible assets. Francis and Schipper (1999) investigate the value-relevance of financial accounting information to investors in the United States. Their analyses indicate that returns on perfect foresight trading strategies based on earnings signs and magnitudes, on levels and changes in earnings and book values, and on an assortment of fundamental signals decreased from 1952 to 1994.

They find the explanatory power that earnings levels and changes have on returns have decreased greatly over time. In contrast, they find no evidence of a decline in the explanatory power that book values of assets and liabilities for market equity values have on the explained variability of balance sheet relationships or the relationship between book value and earnings. Lev and Zarowin (1999) document a systematic decline from 1966 to 1977 in the usefulness of financial information to investors, manifested by a weakened association between capital market values and key financial variables (earnings, cash flows, and book values). They conclude that the main reasons for this decline in usefulness are increasing rates and impacts of business change and inadequate accounting treatment of change and its consequences. They link change empirically to reduced informativeness of financial data. In Korea, Jang et al. (2002) examine the value-relevance of accounting information. They compare the relevance of book values versus reported earnings. Their results indicates that overall relevance of book value and earnings increased from 1981 to 2000 and that the incremental explanatory power of book values increase, while that of earnings decrease.

2.3 Studies on the Relevance of Accounting Income and Equity Valuation

Some research has investigated why value-relevance of earnings has decreased while value-relevance of book values has increased in equity valuation, in terms of income and loss value-relevance.

Collins et al. (1999) conclude that including the book value of equity in valuation specifications eliminates the negative relationship. Their results do not support the hypothesis that the importance of book value in cross-sectional valuation stems primarily from its role as a control for scale differences. Rather, their results are consistent with the hypothesis that book value serves as a general value-relevant proxy for expected future normal earnings for loss firms, and as a proxy for abandonment options for loss firms most likely to cease operations and liquidate. Collins et al. (1999) find that in profit firms, earnings are the value-relevant factor, while book values serve that function in loss firms.

In Korea, Kim (2003) hypothesizes that since shareholders might have liquidation options when losses are expected to continue, listed firms' recorded losses are less informative than their profits regarding their future business prospects. His empirical results support this hypothesis. Both the explanatory power and the magnitude of earnings response coefficients from previous studies (an increase in measured information contents of earnings being proportional to the length of the accumulation period) are related to reduce frequency in aggregate losses. His results support Hayn (1995), but in most cases, Kim (2003) finds the Korean stock market to have a much lower magnitude of earnings response coefficients and explanatory power of the earnings and return relationship than the American market.

The papers discussed above have some important implications. First, whether intended or not, they document that value-relevance factors differ between profit and loss firms; previous studies did not examine this idea. Second, although they assume a linear relationship between accounting information and equity value and test their hypotheses using a linear valuation model, they suggest that there is a need for a nonlinear model that can more precisely explain the relationship between accounting information and equity value.

2.4 Studies on the Nonlinear Relevance of Accounting Income and Book Value in Equity Valuation

Since Ball and Brown (1968) published their paper, most financial market studies have used the linear valuation model, which assumes a linear relationship between earnings and equity value. The business environment in the real world, however, is not certain; decision makers such as CEOs are always open to the options of liquidating, delaying, or expanding their business. Recent studies have demonstrated that the linear assumption used in Ohlson (1995) and Feltham and Ohlson (1995) do not reflect the real world.

Burghstahler and Dichev (1997a) develop and test an option-style valuation model. Their main prediction is that equity value would be a convex function of both earnings and book value, where the function depends on relative values of earnings and book value. They find that when earnings/book value is low, a firm is more likely to exercise its option to adapt its resources to a superior alternative use, and book value becomes the more important determinant of equity value. Test results from a variety of empirical specifications are consistent with this convexity prediction. Yee (2000) incorporates adaptation into Ohlson (1995)'s residual income valuation framework and obtains an adaptation-adjusted valuation formula. Although the model is very basic, it makes two predictions consistent with phenomena reported in the empirical literature: earnings convexity and complementarity. Chen and Zhang (2002) examine the valuation roles of earnings and book values as well as cross-sectional differences in valuation properties, employing a real options-based valuation model. They find that as profitability increased, the value impact of earnings increases, whereas that of book value decreases and eventually become negative; the explanatory power of earnings increases, and that of book value decreases monotonically with profitability. The two accounting measures behave as valuation substitutes within a certain intermediate-profitability range.

The linear assumptions used in these studies differ from those in Ohlson (1995) and Feltham and Ohlson (1995). Ohlson (1995) and Feltham and Ohlson (1995) use an equity valuation model that assumes a linear relationship between accounting variables and equity value, whereas the option-based valuation models do not. Burghstahler and Dichev (1997a), Yee (2000), and Chen and Zhang (2002) emphasize that since option-based models are able to incorporate a firm's option to adapt its resources to alternative use, they can reflect a real world business environment better than linear valuation models. They also find that the relationship between accounting variables and equity values is nonlinear.

3. Hypothesis and Research Design

3.1 Study Hypothesis

To investigate whether the accounting earnings and book value have a nonlinear relationship to equity value, we test the following hypotheses;

Hypothesis 1 (H-1): Equity value is a linear function of earnings.

Hypothesis 2 (H-2): Equity value is a linear function of earnings, controlling for book value.

Hypothesis 3 (H-3): Equity value is a linear function of book value, controlling for earnings.

The first hypothesis is to investigate whether firms have a linear relationship between equity values and accounting earnings. The second and third hypotheses are to investigate relative value-relevance and nonlinear relationship between equity value and accounting earnings/book value.

3.2 Empirical Model for Hypothesis 1

We test H-1 using equation (3-1), replicating the results of Jan and Ou (1994) and Collins et al. (1999) with our sample of loss firms, profits firms, and overall firms from 1981 to 2001, using our earnings variables and equation (3-1), for example, the simple earnings capitalization model is as following:

$$P_t = b_1 + b_2 E_t / S_t + \varepsilon \quad (3-1)$$

P_t : stock price three months after fiscal year t

E_t / S_t : earnings per share in period t

S_t : number of shares outstanding at the end of year t

ε : error term

Next we test H-1 using equation (3-2). Collins et al. (1999) run the following multiple capitalization models separately for profit firms, loss firms, and overall firms, but we actually test equation (3-3) using dummy variable (D_t). In equation (3-3) if $E_t \geq 0$, $D_t = 1$, otherwise $D_t = 0$.

$$P_t = b_1 + b_2 E_t / S_t + b_3 BV_{t-1} / S_t + \varepsilon_t \quad (3-2)$$

BV_{t-1} : the book value of equity per share at the end of year t-1

$$P_t = b_1 + b_2 E_t / S_t + b_3 BV_{t-1} / S_t + b_4 D_t + b_5 D_t * E_t / S_t + b_6 D_t * BV_{t-1} / S_t + \varepsilon \quad (3-3)$$

D_t : dummy variable (if $E_t \geq 0$, $D_t=1$, otherwise $D_t=0$)

3.3 Empirical Model for Hypothesis 2

To test H-2 and H-3, we replicate Burghstahler and Dichev's (1997a) empirical model. The tests for H-2 and H-3 are derived from an empirical version of equation (3-4), expressing the market value of equity (V) as a function of both book value (BV) and earnings (E). In this equation, BV is a proxy for adaptation value and E is proxy for recursion value.

$$V_t = b_1 BV_t + b_2 E_t + \varepsilon, \quad (3-4)$$

Where ε_t is a normally distributed error term with mean zero and unspecified variance. Equation (3-4) approximates market value of equity for a given firm at time t as a linear combination of book value and expected earnings at time t . As E becomes extremely low relative to BV , BV becomes the sole determinants of V and b_2 approaches zero while b_1 approaches unity. In contrast, as E becomes extremely high relative to BV , E becomes the sole determinant of V and b_1 approaches zero while b_2 approaches the earnings capitalization factor. However, to test H-2 and H-3, equation (3-4) must be operationalized in a form that provides a nonlinear relationship so that the coefficients of BV and E may vary with the level of E relative to BV .

Tests for H-2 require a constant book value while testing for the incremental effects of earnings, and tests for H-3 require constant earnings while testing for the incremental effects of book value.

To test for the nonlinear form implied by H-2 and H-3, we divide equation (3-4) by BV_{t-1} as the measure of adaptation value to obtain equation (3-5); we divide equation (3-4) by E as the measure of recursion value to obtain equation (3-6).

$$\begin{aligned} V_t/BV_{t-1} &= b_1 BV_{t-1}/BV_{t-1} + b_2 E_t/BV_{t-1} + \varepsilon^* \\ &= b_1 + b_2 E_t/BV_{t-1} + \varepsilon^* \end{aligned} \quad (3-5)$$

$$\varepsilon^* = \varepsilon/BV_{t-1}$$

$$\begin{aligned} V_t/E_t &= \gamma_1 BV_{t-1}/E_t + \gamma_2 E_t/E_t + \varepsilon^{**} \\ &= \gamma_2 + \gamma_1 BV_{t-1}/E_t + \varepsilon^{**} \end{aligned} \quad (3-6)$$

$$\varepsilon^{**} = \varepsilon/E_t$$

The following variables are used in the empirical tests:

- ① P_t : Stock price three months after fiscal year t
- ② V_t : Market value of equity (stock price 3 months after fiscal year t) \times (number of shares outstanding at the end of year t)
- ③ BV_{t-1} : the book value of equity per share at the end of year $t - 1$
- ④ E_t : Earnings in period t
- ⑤ S_t : Number of shares outstanding at the end of year t

We perform a piecewise linear regression to test H-2 and H-3. In doing so, we control book value and earnings separately and then divide samples into groups as follows:

(1) Controlling for book value of equity

- ① Divide all firms into three equal groups (Burghstahler and Dichev 1997a).
- ② First divide all firms into profit firms and loss firms, and then divide profit firms into three equal groups (Hayn 1995).
- ③ First divide all firms into a group of earnings management and others, and then divide the others into profit firms and loss firms (Burghstahler and Dichev 1997b; Song et al. 2004).

(2) Controlling for accounting earnings.

- ① Divide all firms into three equal groups (Burghstahler and Dichev 1997a).
- ② Divide all firms into two equal groups.
- ③ Divide all firms into a group of earnings management and others (Burghstahler and Dichev 1997b; Song et al. 2004).

3.4 Variable Definition

The paper defines the variables used in the empirical analysis as follows:

- ① P_t : The firm's stock price 3 months after the end of fiscal year t , where year t is the event year.
- ② V_t : Number of shares outstanding at the end of year t times the stock price per share 3 months after the end of fiscal year t .

- ③ BV_{t-1} : Book value at the end of year t
- ④ E_t : Income available to common stockholders in year t .
- ⑤ S_t : Total number of shares outstanding in year t .

4. Empirical Results

4.1 Sample Selection and Data Source

The paper obtains all necessary data from the KIS-FAS and KISRI databases. These data sets span the 20-year period from 1981 to 2001. During the process of sample selection, the study includes firms with stock prices, book values, earnings, and other financial data sufficient for empirical analysis, but the paper excludes financial banking business firms due to administrative issues. Table 1 describes the sample selection and data sources.

Insert <Table 1> about here

4.2 Relationships among Earnings per Share, Book Value per Share, and Stock Prices

4.2.1 Descriptive Statistics

Table 2 presents descriptive statistics for the sample of earnings per share, book value per share, and stock prices per share. The paper identifies 7,928 firm-year observations for the period 1981–2001. Total means of (P_t) is 19,844.40, and its highest value is in 1994. Total means of (E_t/S_t) is 840.11; its highest value is in 1988, and it has negative (-) values in 1997 and 1998. Total means of (BV_{t-1}/S_t) is 20,397.28; its highest value is in 2000.

Insert <Table 2> about here

4.2.2 Multiple Regression Analysis Results

The study divides the total number of firms into profit firms, loss firms, and total firms to perform a simple linear regression between (P_t/S_t) and (E_t/S_t) . Table 3 presents results for individual year regressions; (E_t/S_t) is significantly related to (P_t/S_t) in total firms. The simple regression analysis indicates that total firms earnings are significantly related to stock price. On average, adjusted R^2 and coefficient (b_2) decline in the overall period; these results support results in Collins et al. (1997), Han (1998). Table 3 indicates that in profit firms, earnings are significant variables of value-relevance, while loss firms exhibit decreased significance. These results also support the results of Hayn (1995) and Collins et al. (1999).

Insert <Table 3> about here

Table 4 shows the results of multiple regressions among earnings per share, book value per share, and stock price. The paper includes book value in the multiple regressions to test relative value-relevance between earnings per share (E_t/S_t) and book value per share (BV_{t-1}/S_t) in profit and loss firms. As Table 4 indicates, profit firms have coefficients on earnings per share (E_t/S_t) at a 5 and 1% level of significance in the term of 14 years, 1982–1991, 1992–2001, and 1982–2001, and the coefficients on book value per share (BV_{t-1}/S_t) had a 1% level of significance in the term of 4 years, 1992–2001 and 1982–2001. Loss firms, however, have insignificant coefficients on earnings per share except in the terms of 1987 and 1992, but have coefficients on book value per share of a 5 and 1% level of significance in the term of 8 years, 1992–2001 and 1982–2001. These results suggest that in profit firms, earnings per share is a significant value-relevant factor, while in loss firms, book value per share is relatively more significant than earnings per share. These results also support those of Collins et al. (1999).

Insert <Table 4> about here

Figure 1 graphically represents the findings of multiple regressions; the solid line shows the results of a simple linear regression of earnings per share and stock prices per share, and the dotted line shows those of a multiple regression among earnings per share, book value per share, and stock prices in profit firms and loss firms by using dummy variables that divide total firms into profit firms and loss firms.

Figure 1 shows the simple linear regression results in a steeper coefficient slope for earnings per share in profit firms than in loss firms. The multiple regression results in a steeper coefficient slope for earnings per share in profit firms than in loss firms (profit firms: 4.55, loss firms: 0.16). In contrast, the coefficient slope is steeper for book value per share in loss firms than in profit firms (profit firms: 0.02, loss firms: 0.12).

Insert <Figure 1> about here

The results of the simple and multiple regressions allow the paper to conclude that H-1 (equity value is a linear function of earnings) is not supported. Therefore, the next part of the research focuses on whether stock price is a nonlinear function of earnings and book value.

4.3 Nonlinear Function Tests

The study tests simple linear regression and piecewise linear regression analysis, controlling for book value and

earnings separately. Prior to the tests, the paper eliminates extreme data values; even with this elimination (controlling for book value: 7,928, controlling for earnings: 6,458), outliers are still present in samples. Therefore, the study eliminates samples greater than ROE (earnings/book value) = ± 1

4.3.1 Descriptive Statistics

Table 5 presents descriptive statistics for earnings controlling for book value (E_t/BV_{t-1}) and book value controlling for earnings (V_t/BV_{t-1}). The paper identifies 7,639 (E_t/BV_{t-1}) and 6,345 (V_t/BV_{t-1}) firm-year observations for the period from 1981 to 2001. The total means of (E_t/BV_{t-1}) are 0.06, and all samples are positive except for 1998. Total means of (V_t/BV_{t-1}) are 1.42, and are below 1 in 6 of the 20 years. Total means of (BV_{t-1}/E_t) and (V_t/E_t) were 25.69, 27.01, and all samples are positive because all negative earnings are eliminated.

Insert <Table 5> about here

4.3.2 Value Relevance of Earnings, Controlling for Book Value

4.3.2.1 Simple Linear Regression Analysis

Table 6 displays earnings (after controlling for book value) value-relevance calculated using a simple linear regression model. Earnings coefficients are positively significant at a level of 1% in 19 of 20 years. These results are consistent with most financial market research (e.g., Burgstahler and Dichev 1997 a; Chen and Zhang 2002).

Insert <Table 6> about here

4.3.2.2 Piecewise Linear Regression Analysis

4.3.2.2.1 Piecewise Linear Regression: Dividing E_t/BV_{t-1} into Three Equal Groups

Table 7 displays the results for the piecewise linear regression. It serves as a test of the predicted nonlinear earnings value-relevance because slopes and intercepts of the regression line are able to vary with the magnitude of E_t/BV_{t-1} . Table 7 shows estimated coefficients for three ranges of E_t/BV_{t-1} to provide a piecewise linear approximation of the nonlinear earnings value-relevance. The study divides the E_t/BV_{t-1} into three parts with equal numbers of samples. Dummy variables D_M and D_H indicate the middle and higher profit firm group of E_t/BV_{t-1} .

Coefficients reported in Table 7 represent the total intercept and slope coefficients for the middle group (i.e., b_1+b_2 for the intercept and b_4+b_5 for the slope) and the total coefficients for the higher profit group (i.e., b_1+b_3 for the intercept and b_4+b_6 for the slope). The t-statistics in Table 7 show that b_5 are insignificantly positive, but b_6 are significantly positive (1%, 5% level of significance) in 19 of 20 years. These results suggest that slopes do not differ between the lower firms and middle firms groups, but there is a significant slope difference between the lower firms and higher firms groups.

Insert <Table 7> about here

4.3.2.2.2 Piecewise Linear Regression Analysis: Dividing E_t/BV_{t-1} into Two Equal Groups of Profit Firms and One Loss Firms Group

Table 8 displays how the paper divides the E_t/BV_{t-1} into two equal earnings groups and one loss group. Dummy variables D_M and D_H , indicate the lower profit ranges and higher profit ranges of E_t/BV_{t-1} . Coefficients reported in Table 8 represent the total intercept and slope coefficients for the lower profit group (i.e., b_1+b_2 for the intercept and b_4+b_5 for the slope) and the total coefficients for the higher profit group (i.e., b_1+b_3 for the intercept and b_4+b_6 for the slope).

The t-statistics in Table 8 indicate that b_5 are significantly positive (1%, 5% level of significance) in 6 of 20 years, and b_6 are significantly positive (1%, 5% level of significance) in 19 of 20 years. These results suggest that slopes do not differ between loss firms and low profit firms groups, but a significant difference appeared in slopes between loss firms and higher profit firms groups.

Insert <Table 8> about here

4.3.2.2.3 Piecewise Linear Regression Analysis: Dividing All Data into Three Equal Groups according to the Magnitude of Earnings/Market Value

The study performs piecewise linear regression by dividing all data into three groups of equal numbers according to the magnitude of earnings/market value of equity. This serves as a test of the predicted nonlinear earnings value-relevance because slopes and intercepts of the regression line are able to vary with the magnitude of earnings management.

Figure 2 shows the distribution of annual income scaled by market value of equity from 1982 to 2001. Distribution interval widths are 0.00002 and a red line marks the position of zero on the horizontal axis. Bar height represents the number of observations in a given earnings interval.

The histogram displays a single peaked, bell-shaped distribution that is relatively smooth except in the area of zero

earnings; earnings slightly less than zero occurred much less frequently than expected given the smoothness of the remainder of the distribution and earnings slightly greater than zero occurred much more frequently than expected. This phenomenon is consistent with the results of Burgstahler and Dichev (1997b); Burgstahler and Dichev (1997b) assume an interval range of 0 to 0.00003 to manage earnings. The paper assumes a high probability that earnings management data would fall in the interval range of 0 to 0.00003; therefore, the real earnings are not profit but loss.

Insert <Figure 2> about here

Coefficients reported in Table 9 represent the total intercept and slope coefficients for the earnings management firms group (i.e., b_1+b_2 for the intercept and b_4+b_5 for the slope) and the total coefficients for the higher profit firms group (i.e., b_1+b_3 for the intercept and b_4+b_6 for the slope).

The t-statistics in Table 9 indicate that b_5 are significantly positive (1%, 5% levels of significance) in 18 of 20 years, and b_6 are significantly positive (1%, 5% levels of significance) in all 20 years. The loss firms group has a negative coefficient slope, and the earnings management firms and higher profit firms groups have a positive coefficient slope. The earnings management firms group has a particularly steep coefficient slope, which is steeper than that of higher profit firms group.

These results suggest a significant difference in slopes between loss firms and earnings management firms groups, as well as between loss firms and higher profit firms groups. Therefore, market value and earnings controlling for book value must have a nonlinear relationship.

Insert <Table 9> about here

In summary, the results do not support H-2, which states that equity value is a linear function of earnings, controlling for book value. This suggests that equity value is a nonlinear function of earnings, controlling for book value, which is consistent with the results of Burgstahler and Dichev (1997a), Zhang (2000), and Chen and Zhang (2002).

4.3.3 Value Relevance of Book Value, Controlling for Earnings

4.3.3.1 Simple Linear Regression Analysis

Table 10 displays the relevance of book value (after controlling for earning) using a simple linear regression model. It shows that book value coefficients are positively significant at a 1% level in all 20 years, which is consistent with results of most financial market research (e.g., Burgstahler and Dichev 1997a; Chen and Zhang 2002). Table 10 also shows that estimated R^2 increases over time (1982–1991: 0.43 < 1992–2001: 0.50). These results support those of Collins et al. (1997), Han (1998), who reports that the value relevance of book value has increased over 40 years.

Insert <Table 10> about here

4.3.3.2 Piecewise Linear Regression Analysis

4.3.3.2.1 Piecewise Linear Regression Analysis: Three Equal Groups

Table 11 displays the results of the piecewise linear regression. It serves as a test of predicted nonlinear earnings value-relevance because slopes and intercepts of the regression line are able to vary with the magnitude of BV_{t-1}/E_t . Table 11 shows the estimated coefficients for three ranges of BV_{t-1}/E_t to provide a piecewise linear approximation of the nonlinear earnings value-relevance. We divide the BV_{t-1}/E_t into three parts with equal numbers of samples. Dummy variables D_M and D_H indicate the middle and high profit firms group of BV_{t-1}/E_t . Coefficients reported in Table 11 represent the total intercept and slope coefficients for the middle group (i.e., b_1+b_2 for the intercept and b_4+b_5 for the slope) and the total coefficients for the high group (i.e., b_1+b_3 for the intercept and b_4+b_6 for the slope).

The t-statistics in Table 11 indicate that b_5 are insignificantly positive all 20 years, and b_6 are also insignificantly positive in all 20 years. These results suggest that neither lower firms and middle firms groups, nor lower firms and higher firms groups, have significantly different slopes. These results differ from results reported by Burgstahler and Dichev (1997a) and Chen and Zhang (2002).

Insert <Table 11> about here

4.3.3.2.2 Piecewise Linear Regression Analysis Results: Dividing BV_{t-1}/E_t into Profit Firms and Loss Firms Groups

Table 12 shows the division of BV_{t-1}/E_t into profit firms and loss firms groups. Dummy variables D_t indicate the profit firms group of E_t/BV_{t-1} . Coefficients reported in Table 12 represent the total intercept and slope coefficients for the profit firms group (i.e., b_1+b_2 for the intercept and b_4+b_5 for the slope). The t-statistics in Table 12 indicate that b_4 are significantly positive (1%, 5% levels of significance) in 0 of 20 years. These results indicate that loss firms and profit firms groups do not have a slope difference, and suggest that the value-relevance of book value has a linear function shape.

Insert <Table 12> about here

4.3.3.2.3 Piecewise Linear Regression Analysis: Dividing All Data into Earnings Management Firms and Higher Profit Firms Groups

The paper performs a piecewise linear regression by dividing all data into two groups according to the magnitude of earnings/market value of equity (0.00003). This serves as a test of the predicted nonlinear earnings value-relevance because slopes and intercepts of the regression line are able to vary with the magnitude of earnings management. The t-statistics in Table 13 indicate that b_4 are significantly positive (1%, 5% levels of significance) in 9 of 20 years, and in the pooled periods 1982–1991, 1992–2001, and 1982–2001. These results indicate that earnings management firms and higher profit firms groups have significantly different slopes. Therefore market value and book value controlling for earnings must have a nonlinear function. These results are not consistent with results shown in Table 12, which do not distinguish the earnings management group from all sample data. However, these results suggest that earnings management behavior may distort accounting information in the Korean stock market.

Insert <Table 13> about here

In summary, the empirical results do not support H-3, which states that equity value is a linear function of book value, controlling for earnings. This suggests that equity value is a nonlinear function of book value, controlling for earnings, which is consistent with the results of Burgstahler and Dichev (1997a), Zhang (2000), and Chen and Zhang (2002).

5. Conclusions

This study examines whether the accounting earnings and book value have a nonlinear relationship to equity value by using an option-style model of equity from 1982 to 2001 in the Korean stock market. We use an option-style model of equity value to test the hypothesis that earnings and book value have a nonlinear relationship to equity value. The purposes of this study are as follows. First, we use simple linear regression model of equity value and accounting earnings to investigate whether firms listed in the Korean stock market have a linear relationship between equity values and accounting earnings. Second, we use a multiple linear regression model of equity value and accounting earnings/book value to investigate relative value-relevance between accounting earnings and book value. Third, we use a piecewise linear regression model to investigate the nonlinear relationship between equity value and accounting earnings/book value.

The study performs analyses for all samples and across subsamples divided into loss firms and profit firms, observing changes in relationships over a 20-year period. In the third analysis, the paper divides the sample into loss firms, profit firms, and earnings management firms.

The results of this study are as follows. First, the simple regression of equity value and accounting earnings indicates that profit firms have a linear relationship between equity value and accounting earnings, but loss firms do not. These results imply that the value-relevance of accounting earnings differs between loss firms and profit firms. Second, the regression between equity value and accounting earnings/book value indicates that accounting earnings is the most significant variable affecting the equity values of profit firms, while book value affects the equity values of loss firms. These results imply that accounting earnings and book value are acknowledged differently for equity valuation across firms in the Korean stock market, which has a very important implication for Korean investors and CEOs. Third, the results of the piecewise linear regression model between equity value and accounting earnings/book value indicate that equity value is a nonlinear function of accounting earnings for a given book value, and a nonlinear function of book value for given accounting earnings. These results suggest that an option-style valuation model can explain the nonlinear relationship between equity value and accounting earnings/book value.

The important contribution of the study is to show the nonlinear relationship between equity value and book value in the Korean stock market. And the empirical results of the paper reinforces the adoption of a new equity valuation model that explicitly recognized the option that firms have to adapt their resources to the alternative uses available to them.

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Table 1. Sample selection

Total firms firm-year observations from 1982 to 2001	9,086
(-) Firms missing annual data from 1982 to 2001	293
(-) Impairment of capital firms annually from 1982 to 2001	521
(-) Trimming of extreme value (up-and-down 1%)	344
= Total number of analysis data	7,928

Table 2. Descriptive statistics

Year	Number of data	Stock prices per share (P_t)		Earnings per share (E_t/S_t)		Book value per share (BV_{t-1}/S_t)	
		Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
1982	171	5961.32	2095.42	994.49	2920.14	19543.94	23158.55
1983	215	6993.65	3773.14	1712.97	2405.05	13527.72	7926.71
1984	212	8086.66	4942.98	1131.92	3063.16	13908.76	9009.10
1985	222	9736.91	5422.24	880.60	2330.91	15727.81	11952.14
1986	226	19394.25	12080.22	1306.41	3736.09	15493.11	11865.73
1987	247	20007.29	8652.85	1830.38	6482.90	14932.67	12617.24
1988	326	27341.41	6694.17	2094.36	4065.65	13381.66	13232.18
1989	422	23579.60	7358.98	1414.91	3479.11	13253.15	12737.95
1990	452	17187.26	5886.21	1387.03	3671.38	15153.30	13570.42
1991	469	17830.73	16764.48	1210.47	4068.58	15795.72	14583.68
1992	469	17819.04	12485.09	833.30	5113.67	16766.16	17753.58
1993	474	23056.86	25145.65	949.66	3836.02	17507.92	19887.71
1994	493	28481.08	42569.53	1030.11	4898.74	18197.83	23002.06
1995	503	23137.58	39021.89	1004.10	3740.10	19213.97	27159.51
1996	502	28023.81	38642.74	1253.66	3160.31	20199.62	27254.90
1997	556	17695.32	36341.59	-764.94	6294.44	21493.18	30362.44
1998	521	17494.79	39755.67	-3367.31	15260.12	20857.09	23215.48
1999	472	17632.53	38641.32	1159.86	13747.19	24496.48	45545.08
2000	474	12118.66	24935.18	294.63	10833.81	28527.51	58067.02
2001	502	18002.19	40101.41	1893.69	6925.57	25119.96	39737.56
82-91	2962	17166.51	11293.29	1412.19	3856.75	15627.91	22749.48
92-01	4966	21438.29	63373.69	499.61	9232.57	23236.04	104957.29
81-01	7928	19844.40	50688.69	840.11	7692.53	20397.28	84331.51

P_t : Firm stock price 3 months after the end of fiscal year t , where year t is the event year

S_t : Total number of shares outstanding in year t

E_t : Income available to common stockholders in year t

BV_{t-1} : Book value at the end of year t

Table 3. Simple linear regression

Year	Total firms					Profit firms					Loss firms				
	Constant		Coefficient		Adj	Constant		Coefficient		Adj	Constant		Coefficient		Adj
	B ₁	t ₁	b ₂	t ₂	R ²	b ₁	t ₁	b ₂	t ₂	R ²	b ₁	t ₁	b ₂	t ₂	R ²
1982	5977.14	35.20 **	-0.02	-0.29	-0.01	5899.19	23.01 **	0.00	0.05	-0.01	-2693.51	-2.98 **	-0.02	-0.56	-0.02
1983	5664.19	24.92 **	0.98	12.71 **	0.44	5508.58	19.60 **	1.07	11.22 **	0.41	4057.90	9.43 **	0.20	1.37	0.04
1984	7152.27	23.45 **	0.86	9.24 **	0.29	5987.76	15.39 **	1.54	10.44 **	0.37	4277.41	6.17 **	0.11	0.90	-0.01
1985	8730.28	25.70 **	1.14	8.37 **	0.24	7804.07	16.39 **	1.85	7.83 **	0.24	5247.80	6.50 **	0.15	0.86	-0.01
1986	17025.73	24.10 **	1.81	10.14 **	0.31	13490.48	16.55 **	3.63	13.49 **	0.48	10015.99	8.37 **	0.23	1.54	0.05
1987	18539.27	40.45 **	0.80	11.77 **	0.36	18063.77	35.71 **	1.02	11.67 **	0.38	14142.51	15.23 **	0.26	3.74 **	0.39
1988	25574.54	71.27 **	0.84	10.74 **	0.26	25672.52	69.21 **	0.84	10.54 **	0.26	21037.19	9.98 **	-0.89	-1.02	0.00
1989	22370.59	63.09 **	0.86	9.10 **	0.16	22493.60	59.41 **	0.86	8.63 **	0.16	18444.92	13.70 **	-0.35	-0.72	-0.02
1990	16260.86	60.36 **	0.67	9.72 **	0.17	16546.05	57.22 **	0.63	8.68 **	0.15	12331.75	15.87 **	0.03	0.08	-0.03
1991	14286.19	25.12 **	2.94	21.91 **	0.51	13046.14	21.40 **	3.53	23.86 **	0.58	6688.85	8.01 **	-0.23	-1.37	0.02
1992	16224.08	44.69 **	1.91	27.29 **	0.61	15716.90	36.07 **	2.13	25.80 **	0.64	12444.47	24.80 **	0.47	4.47 **	0.17
1993	19763.74	19.52 **	3.47	13.52 **	0.28	19549.71	14.35 **	3.71	11.39 **	0.26	11845.84	14.05 **	0.00	0.00	-0.01
1994	21164.98	18.73 **	7.10	31.43 **	0.67	13774.81	12.85 **	9.08	41.92 **	0.81	15636.74	10.98 **	0.32	1.17 *	0.01
1995	17759.80	11.48 **	5.36	13.39 **	0.26	11016.96	5.70 **	8.02	15.34 **	0.37	11520.18	8.98 **	-0.44	-1.55	0.02
1996	16066.93	13.82 **	9.54	27.87 **	0.61	12987.32	8.97 **	10.24	26.14 **	0.63	-1109.40	-7.44 **	-0.00	-0.35	-0.01
1997	19181.12	13.11 **	1.94	8.41 **	0.11	9401.76	4.00 **	7.14	11.36 **	0.27	8150.17	9.44 **	0.14	1.46	0.01
1998	19554.60	11.22 **	0.61	5.48 **	0.05	11411.37	4.10 **	4.37	8.79 **	0.19	8081.48	11.80 **	0.08	2.88 **	0.04
1999	15824.51	10.64 **	1.56	14.45 **	0.31	10130.42	6.32 **	2.87	20.22 **	0.52	6865.29	6.40 **	0.06	1.09	0.00
2000	11796.75	12.37 **	1.29	14.68 **	0.31	5387.26	6.24 **	3.14	29.71 **	0.72	4682.57	6.53 **	-0.05	-1.03	0.00
2001	10611.65	6.85 **	4.19	20.99 **	0.47	2373.48	1.30	5.76	24.66 **	0.61	6742.20	9.36 **	-0.04	-0.47	-0.01
82-91	15301.10	77.47 **	1.32	27.46 **	0.20	15189.55	67.66 **	1.50	25.92 **	0.20	9894.48	21.35 **	0.17	2.17 *	0.01
92-01	20328.73	23.85 **	2.22	24.08 **	0.11	14274.26	12.65 **	4.43	28.84 **	0.18	9574.03	33.58 **	0.10	4.83 **	0.02
81-01	18068.61	33.29 **	2.11	30.13 **	0.10	13287.39	19.58 **	4.03	36.48 **	0.17	9612.51	39.32 **	0.10	5.33 **	0.02

Simple Regression Equation: $P_t = b_1 + b_2 E_t / S_t + \varepsilon$

P_t : Firm stock price 3 months after the end of fiscal year t, where year t is the event year

S_t : Total number of shares outstanding in year t

E_t : Income available to common stockholders in year t

ε : Error term

*/**: $p < 0.05/0.01$

Table 4. Multiple regression analysis of relative value-relevance of earnings per share and book value per share in profit firms and loss firms

Year	Constant		Coefficient of earnings per share				Coefficient of book value per share				Adj R ²
	Profit firms	Loss firms	Profit firms		Loss firms		Profit firms		Loss firms		
	b ₁ +b ₄	b ₁	b ₂ +b ₅	t ₅	b ₂	t ₂	b ₃ +b ₆	t ₆	b ₃	t ₃	
1982	5812.35	6007.95	0.00	-0.28	0.04	0.38	0.00	-0.67	0.02	0.96	-0.02
1983	4508.04	2700.36	0.98	3.36 **	0.09	0.35	0.09	-0.37	0.12	1.24	0.50
1984	4698.05	1950.07	1.36	5.94 **	0.13	0.92	0.11	-0.93	0.23	1.82	0.45
1985	7121.84	3212.11	1.65	4.39 **	0.15	0.63	0.06	-1.13	0.13	2.84 **	0.35
1986	13428.0	6283.91	3.60	7.79 **	0.15	0.62	0.01	-1.79	0.29	2.07 *	0.52
1987	15544.3	11986.8	0.63	2.37 *	0.24	2.03 *	0.23	0.38	0.18	1.61	0.47
1988	23390.3	16752.5	0.16	1.88	-1.17	-1.67	0.29	0.65	0.24	3.26 **	0.43
1989	21083.7	17682.6	0.39	0.64	-0.08	-0.11	0.17	0.79	0.07	0.63	0.20
1990	14645.1	10197.8	0.10	0.18	0.01	0.02	0.18	0.46	0.14	1.45	0.26
1991	9305.92	3983.80	2.32	4.85 **	0.13	0.34	0.36	0.52	0.28	1.88	0.63
1992	12213.1	10087.8	1.28	3.43 **	0.51	2.66 **	0.28	1.22	0.19	2.50 *	0.71
1993	6959.15	8015.63	1.31	1.74	0.05	0.08	0.90	4.73 **	0.30	2.46 *	0.66
1994	9428.35	10568.4	7.09	10.33 **	0.54	1.09	0.43	0.07	0.42	2.82 **	0.82
1995	1006.39	7852.50	5.52	6.86 **	-0.16	-0.23	0.73	2.93 **	0.27	1.76	0.57
1996	9048.67	6113.96	8.30	3.38 **	-0.48	-0.19	0.35	-0.48	0.44	2.30 *	0.67
1997	-890.29	4004.16	3.23	5.62 **	0.29	1.24	0.77	5.75 **	0.28	3.73 **	0.55
1998	-2685.40	5784.77	1.68	3.48 **	0.10	0.89	0.92	5.04 **	0.16	1.29	0.36
1999	7323.36	5945.53	2.17	8.62	0.07	0.52	0.20	0.84	0.07	0.53	0.54
2000	-744.19	4339.81	2.58	15.43 **	0.07	0.61	0.11	1.27	0.06	1.31	0.75
2001	304.89	3030.70	4.41	9.66 **	0.09	0.26	0.22	-0.79	0.42	1.73	0.58
82-91	15045.4	9488.52	1.46	9.86 **	0.17	1.51	0.02	-0.57	0.03	1.33	0.24
92-01	14405.2	7436.39	5.22	23.65 **	0.19	1.35	-0.09	-3.11 **	0.17	2.13 *	0.20
82-01	13423.4	8003.23	4.55	27.55 **	0.16	1.50	-0.02	-3.42 **	0.12	2.29 *	0.19

Multiple Regression Equation: $P_t = b_1 + b_2 E_t / S_t + b_3 BV_{t-1} / S_t + b_4 D_t + b_5 D_t * E_t / S_t + b_6 D_t * BV_{t-1} / S_t + \varepsilon$

P_t: Firm stock price 3 months after the end of fiscal year t, where year t is the event year

S_t: Total number of shares outstanding in year t

E_t: Income available to common stockholders in year t

BV_{t-1}: Book value at the end of year t

ε: Error term

D_t: Dummy variable (If E_t ≥ 0 D=1, Or, D=0)

**/* : p < 0.05/0.01

Table 5. Descriptive statistics of all samples controlling for book value and earnings

Year	Sample number	Controlling for book value				Sample number	Controlling for earnings			
		E_t/BV_{t-1}		V_t/BV_{t-1}			BV_{t-1}/E_t		V_t/E_t	
		Means	Standard deviation	Means	Standard deviation		Means	Standard deviation	Means	Standard deviation
1982	160	0.13	0.24	0.80	1.17	132	37.07	95.35	12.05	47.10
1983	195	0.13	0.17	0.65	0.40	177	23.38	62.63	10.54	25.42
1984	207	0.09	0.18	0.71	0.50	180	20.19	37.42	10.27	15.14
1985	215	0.06	0.15	0.83	0.62	189	22.30	34.10	22.30	34.10
1986	218	0.10	0.12	1.65	1.46	199	22.22	64.62	20.55	25.79
1987	241	0.14	0.17	1.92	1.44	224	13.92	19.49	22.08	33.93
1988	322	0.17	0.16	3.16	1.99	307	11.76	18.02	33.43	57.65
1989	418	0.12	0.14	2.62	1.73	391	17.46	34.05	36.95	66.00
1990	446	0.09	0.13	1.52	1.54	414	25.07	56.52	34.25	76.18
1991	464	0.06	0.16	1.19	0.79	411	22.28	28.95	20.17	19.03
1992	456	0.03	0.16	1.33	1.10	372	31.37	60.18	36.59	66.20
1993	461	0.03	0.16	1.48	0.82	364	29.36	50.78	39.32	63.69
1994	482	0.04	0.17	1.75	1.20	467	27.97	44.06	39.18	59.87
1995	493	0.04	0.18	1.37	1.03	403	27.00	46.47	31.71	55.01
1996	537	0.01	0.20	1.89	5.17	407	30.40	49.36	38.34	57.50
1997	522	-0.02	0.24	0.94	1.66	352	41.14	69.17	24.84	36.65
1998	442	-0.00	0.27	1.00	0.83	322	31.92	53.96	25.66	45.02
1999	442	0.06	0.21	1.21	2.01	371	19.06	28.28	17.57	42.99
2000	442	0.03	0.21	0.61	0.75	344	33.06	59.87	14.30	30.86
2001	476	0.04	0.21	1.20	3.05	379	22.16	42.78	16.16	32.56
82-91	2886	0.11	0.16	1.65	1.57	2624	20.73	46.05	24.58	49.66
92-01	4753	0.03	0.20	1.29	2.30	3723	29.18	51.52	28.70	51.80
82-01	7639	0.06	0.19	1.42	2.06	6345	25.69	49.51	27.01	50.97

V_t : Number of shares outstanding at the end of year t times the stock price per share 3 months after the end of fiscal year t

BV_{t-1} : Book value at the end of year t

E_t : Income available to common stockholders in year t

E_t/BV_{t-1} : Book value of equity at the end of year t-1/Earnings in period t

V_t/BV_{t-1} : Market value of equity at the end of year t/Book value of equity at the end of year t-1

BV_{t-1}/E_t : Book value of equity at the end of year t-1/Earnings in period t

V_t/E_t : Market value of equity at the end of year t/Earnings in period t

Table 6. Value relevance of earnings after controlling for book value

Year	Constant b_1 (t_1)			Coefficient b_2 (t_2)			Adj. R^2
1982	0.51	5.53	**	2.28	6.76	**	0.22
1983	0.53	15.69	**	0.91	5.71	**	0.14
1984	0.62	17.26	**	1.00	5.61	**	0.13
1985	0.75	17.17	**	1.23	4.53	**	0.08
1986	1.26	10.21	**	3.77	4.89	**	0.10
1987	1.54	13.89	**	2.82	5.64	**	0.11
1988	2.43	16.27	**	4.34	6.88	**	0.13
1989	2.08	20.08	**	4.60	8.15	**	0.14
1990	1.19	14.42	**	3.76	7.14	**	0.10
1991	1.07	30.03	**	2.07	10.23	**	0.18
1992	1.29	24.96	**	1.35	4.38	**	0.04
1993	1.44	38.47	**	1.27	5.42	**	0.06
1994	1.69	30.37	**	1.36	4.22	**	0.03
1995	1.32	28.37	**	1.04	4.23	**	0.03
1996	1.87	8.35	**	1.84	1.65		0.00
1997	0.97	13.44	**	1.21	4.10	**	0.03
1998	1.00	27.57	**	1.22	8.99	**	0.15
1999	1.06	10.98	**	2.14	4.79	**	0.05
2000	0.59	16.80	**	0.92	5.42	**	0.06
2001	1.24	8.67	**	-0.75	-1.14	**	0.00
82-91	1.30	39.79	**	3.28	19.58	**	0.12
92-01	1.26	37.56	**	1.18	7.25	**	0.01
82-01	1.32	54.50	**	1.87	15.63	**	0.03

Simple regression equation: $V_t/BV_{t-1} = b_1 + b_2 E_t/BV_{t-1} + \varepsilon$

Variable definitions: See <Table 5>

ε : Error term

*/**: $p < 0.05/0.01$

Table 7. Market value as a piecewise function of earnings controlling for book value (three equal groups)

Year	Cutoff Point (E/BV)					Constants						Coefficients						Adj. R ²
	Lower (%)	Cut-off	Mid	Cut-off	Hig	Lower firms		Middle firms		Higher firms		Lower firms		Middle firms		Higher firms		
						b ₁ (t ₁)	b ₁ +b ₂ (t ₂)		b ₁ +b ₃ (t ₃)		b ₄ (t ₄)		b ₄ +b ₅ (t ₅)		b ₄ +b ₆ (t ₆)			
1982	33.3	0.03	33.3	0.15	33.3	0.36	2.38 *	-0.08	-1.16	0.26	-0.30	-0.96	-1.06	7.08	1.93	3.25	3.76 **	0.29
1983	33.3	0.06	33.3	0.17	33.3	0.44	10.19 **	0.38	-0.31	0.63	1.46	-0.46	-1.69	1.77	1.55	1.01	2.98 **	0.27
1984	33.3	0.05	33.3	0.13	33.3	0.45	7.82 **	0.58	0.54	0.71	1.83	-0.20	-0.67	0.96	0.48	1.21	2.55 *	0.21
1985	33.3	0.04	33.3	0.10	33.3	0.54	7.86 **	0.87	1.13	0.70	0.93	-0.09	-0.23	-0.54	-0.12	2.35	2.64 **	0.16
1986	33.3	0.06	33.3	0.14	33.3	0.98	6.57 **	1.50	0.73	0.36	-1.15	-2.49	-2.04 *	0.24	0.39	9.63	4.67 **	0.23
1987	33.3	0.08	33.3	0.16	33.3	1.53	10.51 **	0.52	-1.34	0.89	-1.71	-0.20	-0.22	10.26	1.72	5.39	3.98 **	0.17
1988	33.3	0.10	33.3	0.20	33.3	2.69	14.87 **	1.43	-1.38	1.56	-2.27 *	-1.10	-0.69	9.86	1.74	7.18	4.08 **	0.17
1989	33.3	0.06	33.3	0.15	33.3	2.00	15.08 **	1.63	-0.58	2.03	0.11	-1.32	-1.01	8.02	1.54	5.61	4.15 **	0.18
1990	33.3	0.05	33.3	0.10	33.3	1.26	10.84 **	1.40	0.25	0.31	-4.06 **	0.05	0.04	1.23	0.17	7.67	5.61 **	0.16
1991	33.3	0.04	33.3	0.10	33.3	0.71	13.48 **	0.70	-0.03	1.16	4.24 **	-0.50	-1.82	5.74	2.17 *	3.24	7.68 **	0.39
1992	33.3	0.03	33.3	0.07	33.3	1.03	10.78 **	1.38	1.07	1.05	0.08	-0.27	-0.61	-2.24	-0.32	4.00	4.55 **	0.09
1993	33.3	0.02	33.3	0.07	33.3	1.10	15.73 **	1.37	1.21	1.35	1.75	-0.49	-1.54	0.60	0.24	3.58	4.87 **	0.17
1994	33.3	0.03	33.3	0.08	33.3	1.25	13.64 **	1.00	-0.76	1.25	0.03	-1.81	-4.29 **	8.93	1.99 *	6.36	8.78 **	0.24
1995	33.3	0.03	33.3	0.08	33.3	0.98	11.66 **	0.84	-0.48	1.30	2.25 *	-1.16	-3.09 **	7.52	1.73	2.61	6.04 **	0.14
1996	33.3	0.02	33.3	0.06	33.3	1.54	3.39 **	0.69	-0.63	1.16	-0.49	-1.04	-0.64	13.49	0.47	10.14	3.09 **	0.03
1997	33.3	0.00	33.3	0.06	33.3	0.60	3.45 **	0.37	-0.78	1.28	2.62 **	-0.01	-0.01	11.49	1.47	1.65	1.57	0.07
1998	33.3	0.01	33.3	0.08	33.3	0.79	9.39 **	0.56	-1.32	1.14	2.54 *	0.49	2.22 *	7.15	1.99 *	1.62	2.40 *	0.22
1999	33.3	0.04	33.3	0.12	33.3	0.91	5.09 **	0.87	-0.08	0.47	-1.12	0.41	0.59	-0.17	-0.08	6.26	3.84 **	0.10
2000	33.3	0.02	33.3	0.08	33.3	0.50	7.32 **	0.25	-1.46	0.30	-1.56	0.10	0.40	4.53	1.46	3.17	5.63 **	0.15
2001	33.3	0.03	33.3	0.12	33.3	0.77	2.71 **	0.91	0.16	0.82	0.08	-3.33	-3.24 **	-1.99	0.13	3.52	2.97 **	0.03
82-91	33.3	0.06	33.3	0.13	33.3	1.08	23.03 **	1.20	0.57	1.20	1.06	-0.16	-0.52	3.40	1.68	4.54	10.20 **	0.16
92-01	33.3	0.02	33.3	0.08	33.3	0.93	13.62 **	0.86	-0.37	1.04	0.92	-0.51	-2.09 *	5.05	1.66	3.87	8.23 **	0.03
82-01	33.3	0.04	33.3	0.10	33.3	0.96	22.43 **	0.92	-0.25	1.10	1.64	-0.46	-2.49 *	5.25	2.78 **	4.28	13.17 **	0.07

Multiple regression equation: $V_t/BV_{t-1} = b_1 + b_2D_M + b_3D_H + b_4E_t/BV_{t-1} + b_5D_M E_t/BV_{t-1} + b_6D_H E_t/BV_{t-1} + \epsilon$

Variable definitions: See <Table 5>

ϵ : Error term

*/**: $p < 0.05/0.01$

D_M and D_H are dummy variables for the middle and higher firms group defined by the E_t/BV_{t-1} cutoffs.

Table 8. Market value as a piecewise function of earnings controlling for book value (two equal profit groups and one loss group)

Year	Cutoff Point (E/BV)					Constants						Coefficients						Adj. R ²					
year	Loss (%)	Cut-off	Lower (%)	Cut-off	Higher (%)	Loss firms b ₁ (t ₁)		Lower profit firms b ₁ +b ₂ (t ₂)		Higher profit firms b ₁ +b ₃ (t ₃)		Loss firms b ₄ (t ₄)		Lower profit firms b ₄ +b ₅ (t ₅)		Higher profit firms b ₄ +b ₆ (t ₆)		Adj. R ²					
1982	18	0	41	0.12	41	0.39	1.52	0.24	-0.44	0.35	-0.13	-0.88	-0.78	2.25	0.84	3.10	3.16	**	0.29				
1983	9	0	45	0.13	46	0.44	4.59	**	0.37	-0.53	0.54	0.79	-0.46	-1.41	1.60	1.94	1.24	3.63	**	0.27			
1984	13	0	43	0.11	44	0.48	3.55	**	0.33	-0.90	0.58	0.60	-0.14	-0.32	4.17	2.73	**	1.58	2.89	**	0.21		
1985	17	0	41	0.08	42	0.50	3.37	**	0.39	-0.55	0.55	0.29	-0.17	-0.36	7.72	2.82	**	2.97	3.57	**	0.16		
1986	9	0	45	0.11	46	0.61	1.77	0.57	-0.09	0.34	-0.53	-3.78	-2.50	*	10.88	3.09	**	9.67	5.71	**	0.24		
1987	7	0	46	0.13	47	1.73	4.18	**	1.30	-0.84	1.10	-1.28	0.16	0.12	3.20	0.78	4.90	3.04	**	0.16			
1988	5	0	47	0.14	48	1.99	3.39	**	2.57	0.84	1.84	-0.22	-3.17	-1.39	1.24	0.99	6.54	3.87	**	0.17			
1989	6	0	47	0.11	47	1.02	2.58	*	1.80	1.65	1.91	1.98	*	-4.96	-2.67	**	6.50	2.56	*	5.95	5.28	**	0.19
1990	7	0	46	0.08	47	0.90	2.72	**	1.20	0.77	0.55	-0.94	-1.11	-0.78	4.37	1.16	7.01	4.99	**	0.16			
1991	9	0	45	0.08	46	0.44	3.60	**	0.60	1.02	1.05	4.28	**	-1.14	-3.07	**	7.44	3.74	**	3.57	8.99	**	0.39
1992	18	0	41	0.06	41	0.95	6.16	**	1.06	0.47	1.00	0.20	-0.46	-0.86	4.76	1.17	4.19	4.93	**	0.09			
1993	21	0	39	0.06	40	0.93	9.14	**	1.26	2.00	*	1.31	2.52	*	-0.92	-2.47	*	2.52	0.99	3.77	5.83	**	0.18
1994	15	0	42	0.08	43	1.00	5.83	**	1.22	0.99	1.25	1.14	-2.39	-4.46	**	4.69	2.01	*	6.36	9.17	**	0.24	
1995	18	0	41	0.06	41	0.68	4.99	**	1.00	1.53	1.27	3.45	**	-1.86	-4.15	**	4.90	1.69	2.70	6.99	**	0.15	
1996	24	0	38	0.06	38	1.81	3.04	**	0.94	-0.83	1.09	-0.87	-0.48	-0.27	7.68	0.31	10.37	3.02	**	0.03			
1997	33	0	33	0.06	34	0.61	3.44	**	0.36	-0.87	1.27	2.50	*	0.03	0.07	11.67	1.50	1.67	1.55	0.07			
1998	27	0	36	0.07	37	0.81	7.67	**	0.65	-1.06	1.11	2.01	*	0.53	2.13	*	5.12	1.49	1.71	2.49	*	0.22	
1999	16	0	42	0.10	42	0.94	2.75	**	0.95	0.01	0.32	-1.38	0.47	0.52	-1.42	-0.35	6.69	4.04	**	0.09			
2000	22	0	39	0.07	39	0.60	6.31	**	0.41	-1.37	0.38	-1.61	0.31	1.09	-0.20	-0.19	2.90	4.83	**	0.15			
2001	37	0	31	0.10	32	0.91	1.99	*	0.61	-0.46	0.60	-0.48	-3.05	-2.38	*	2.58	0.69	4.16	3.11	**	0.03		
82-91	9	0	45	0.10	46	0.80	6.80	**	0.88	0.58	1.10	2.20	*	-0.97	-2.32	*	7.70	5.75	**	4.78	11.18	**	0.17
92-01	22	0	39	0.07	39	0.97	9.75	**	0.81	-1.07	1.02	0.33	-0.43	-1.48	6.13	2.30	*	3.95	8.23	**	0.03		
82-01	17	0	41	0.08	42	0.93	12.11	**	0.82	-1.01	1.06	1.30	-0.53	-2.27	*	6.89	4.55	**	4.40	13.47	**	0.07	

Multiple regression equation: $V_t/BV_{t-1} = b_1 + b_2D_M + b_3D_H + b_4E_t/BV_{t-1} + b_5D_ME_t/BV_{t-1} + b_6D_HE_t/BV_{t-1} + \epsilon$

Variable definitions: See <Table 5>

ϵ : Error term

*/**: $p < 0.05/0.01$

D_M and D_H are dummy variables for the lower profit and higher profit firms group defined by the E_t/BV_{t-1} cutoffs.

Table 9. Market value as a piecewise function of earnings controlling for book value (dividing data into three equal groups according to the magnitude of earnings/market value)

Year	Cutoff Point (E/BV)					Constants						Coefficients						Adj. R ²
year	Loss (%)	Cut-off	Lower (%)	Cut-off	Higher (%)	Loss firms b ₁ (t ₁)		Earnings management b ₁ +b ₂ (t ₂)		Higher profit firms b ₁ +b ₃ (t ₃)		Loss firms b ₄ (t ₄)		Earnings management b ₄ +b ₅ (t ₅)		Higher profit firms b ₄ +b ₆ (t ₆)		Adj. R ²
1982	17	0	3	0.0000	80	0.39	1.55	0.29	-0.15	0.19	-0.74	-0.88	-0.80	117.2	2.03 *	3.42	3.68 **	0.32
1983	9	0	5	0.0000	86	0.44	4.56 **	0.40	-0.20	0.38	-0.49	-0.46	-1.40	11.41	0.75	1.74	5.60 **	0.26
1984	13	0	2	0.0000	85	0.48	3.52 **	0.43	-0.14	0.48	-0.01	-0.14	-0.32	-8.67	-0.21	1.95	3.98 **	0.20
1985	12	0	6	0.0000	82	0.50	3.54 **	0.57	0.30	0.50	0.01	-0.17	-0.38	27.39	3.94 **	3.32	5.15 **	0.24
1986	8	0	10	0.0000	81	0.61	2.49 *	0.29	-0.94	0.67	0.23	-3.78	-3.53 **	40.16	15.93 **	7.02	8.00 **	0.62
1987	7	0	11	0.0000	82	1.73	4.65 **	0.95	-1.56	0.91	-2.05 *	0.16	0.14	33.55	6.06 **	5.32	3.97 **	0.32
1988	5	0	20	0.0000	75	1.99	3.85 **	2.11	0.19	1.31	-1.24	-3.17	-1.58	26.49	6.37 **	7.79	5.14 **	0.35
1989	6	0	27	0.0000	66	1.02	3.20 **	1.13	0.31	1.18	0.46	-4.96	-3.30 **	35.63	12.99 **	7.71	7.82 **	0.47
1990	7	0	21	0.0000	72	0.90	6.13 **	0.68	-1.31	1.22	2.08 *	-1.11	-1.76	34.32	36.34 **	1.58	3.76 **	0.83
1991	11	0	11	0.0000	78	0.44	3.65 **	0.22	-1.06	0.77	2.60 **	-1.14	-3.11 **	40.21	5.88 **	4.60	12.09 **	0.41
1992	18	0	23	0.0000	58	0.95	8.10 **	0.05	-5.43 **	0.82	-0.98	-0.46	-1.13	60.50	17.72 **	4.40	7.34 **	0.47
1993	21	0	25	0.0000	54	0.93	10.88 **	0.49	-3.30 **	0.99	0.56	-0.92	-2.94 **	41.29	13.78 **	5.04	9.93 **	0.42
1994	15	0	25	0.0000	60	1.00	6.27 **	0.83	-0.75	0.88	-0.62	-2.39	-4.79 **	30.97	8.81 **	7.68	12.88 **	0.35
1995	18	0	19	0.0000	63	0.68	5.69 **	0.69	0.04	0.97	2.14 *	-1.86	-4.73 **	33.65	12.47 **	3.35	9.60 **	0.35
1996	24	0	23	0.0000	53	1.81	3.25 **	-0.07	-2.40 *	0.54	-1.86	-0.48	-0.29	72.30	8.66 **	8.48	2.88 **	0.14
1997	33	0	14	0.0000	54	0.61	3.70 **	0.30	-1.12	0.57	-0.21	0.03	0.07	47.89	9.23 **	3.65	4.22 **	0.20
1998	27	0	12	0.0000	61	0.81	8.97 **	0.49	-2.27 *	0.70	-1.05	0.53	2.49 *	38.07	12.49 **	2.82	6.52 **	0.43
1999	16	0	7	0.0000	77	0.94	4.04 **	1.11	0.42	0.11	-3.24 **	0.47	0.76	57.18	15.75 **	6.33	6.64 **	0.58
2000	22	0	5	0.0000	73	0.60	6.80 **	0.56	-0.23	0.24	-3.54 **	0.31	1.17	31.55	6.58 **	3.36	7.27 **	0.27
2001	20	0	8	0.0000	72	0.91	2.07 *	0.24	-0.88	0.26	-1.28	-3.05	-2.48 *	57.06	5.49 **	4.96	4.26 **	0.10
82-91	9	0	14	0.0000	77	0.80	8.41 **	0.84	0.37	0.77	-0.22	-0.97	-2.86 **	36.16	35.53 **	5.28	16.05 **	0.46
92-01	22	0	16	0.0000	62	0.97	10.59 **	0.18	-5.88 **	0.63	-3.20 **	-0.43	-1.61	57.56	27.53 **	4.66	11.68 **	0.18
82-01	17	0	16	0.0000	68	0.93	13.36 **	0.53	-4.20 **	0.67	-3.28 **	-0.53	-2.50 *	44.97	38.58 **	5.09	18.96 **	0.24

Multiple regression equation: $V_t/BV_{t-1} = b_1 + b_2D_M + b_3D_H + b_4E_t/BV_{t-1} + b_5D_ME_t/BV_{t-1} + b_6D_HE_t/BV_{t-1} + \varepsilon$

Variable definitions: See <Table 5>

ε : Error term

*/**: $p < 0.05/0.01$

D_M and D_H are dummy variables for the earnings management and higher profit firms group defined by the E_t/BV_{t-1} cutoffs.

Table 10. Value relevance of book value after controlling for earnings

Year	Constant b_1 (t_1)			Coefficient b_2 (t_2)			Adj. R^2
1982	1.77	0.48		0.28	7.73	**	0.31
1983	2.44	2.29	*	0.35	21.62	**	0.73
1984	2.76	5.47	**	0.37	31.30	**	0.85
1985	0.57	0.52		0.68	25.23	**	0.77
1986	13.01	12.74	**	0.34	22.64	**	0.72
1987	4.00	2.15	*	1.30	16.68	**	0.55
1988	-0.52	-0.31		2.89	36.51	**	0.81
1989	11.58	4.66	**	1.45	22.33	**	0.56
1990	2.59	1.81		1.26	54.55	**	0.88
1991	8.39	11.89	**	0.53	27.36	**	0.65
1992	9.13	3.89	**	0.88	25.26	**	0.63
1993	7.28	3.82	**	1.09	33.57	**	0.76
1994	8.21	4.03	**	1.12	28.35	**	0.66
1995	6.02	3.19	*	0.95	27.05	**	0.65
1996	9.85	4.95	**	0.94	27.28	**	0.65
1997	10.92	6.23	**	0.34	15.53	**	0.41
1998	5.22	2.79	**	0.64	21.42	**	0.59
1999	6.76	2.70	**	0.57	7.72	**	0.14
2000	2.76	1.97	*	0.35	17.00	**	0.46
2001	3.92	3.02	**	0.55	20.46	**	0.53
82-91	9.91	12.35	**	0.71	44.52	**	0.43
92-01	7.99	11.56	**	0.71	60.82	**	0.50
82-01	8.83	16.87	**	0.71	75.36	**	0.47

Simple regression equation: $V_t/E_t = b_1 + b_2 BV_{t-1}/E_t + \varepsilon$

Variable definitions: See <Table 5>

ε : Error term

*/**: $p < 0.05/0.01$

Table 11. Market value as a piecewise function of book value controlling for earnings (three equal groups)

Year	Cutoff Point (E/BV)					Constants						Coefficients						Adj. R ²
year	Lower (%)	Cut-off	Middle (%)	Cut-off	Higher (%)	Lower profit firms b ₁ (t ₁)		Middle profit firms		Higher profit firms b ₁ +b ₃ (t ₃)		Lower profit firms b ₄ (t ₄)		Middle profit firms b ₄ +b ₅ (t ₅)		Higher profit firms		Adj. R ²
1982	33.3	5.35	33.3	17.2	33.3	2.96	0.5	7.11	0.21	-1.55	0.48	0.29	7.04	0.29	-	-0.14	-0.25	0.30
1983	33.3	5.41	33.3	11.6	33.3	2.16	1.25	1.24	-0.11	3.30	0.43	0.34	19.45	0.34	-	0.45	0.11	0.72
1984	33.3	6.79	33.3	13.5	33.3	0.62	0.24	2.45	0.39	2.53	0.68	0.87	1.49	0.42	-0.64	0.37	-0.85	0.84
1985	33.3	8.70	33.3	18.5	33.3	3.92	0.66	-4.1	-0.83	-6.52	-1.64	0.45	0.46	1.19	0.66	0.74	0.30	0.79
1986	33.3	6.65	33.3	13.3	33.3	7.44	1.07	-0.7	-0.77	18.52	1.55	0.84	0.60	1.64	0.49	0.32	-0.37	0.74
1987	33.3	5.91	33.3	11.0	33.3	3.52	0.41	11.8	0.49	4.74	0.13	1.41	0.67	0.31	-0.40	1.29	-0.06	0.55
1988	33.3	4.90	33.3	9.49	33.3	7.86	0.95	13.3	0.35	-7.35	-1.70	1.27	0.53	0.99	-0.09	3.01	0.72	0.82
1989	33.3	6.72	33.3	13.4	33.3	6.87	0.55	6.79	-0.00	19.54	0.95	1.74	0.66	1.74	0.00	1.39	-0.13	0.56
1990	33.3	9.40	33.3	17.9	33.3	3.58	0.48	0.53	-0.21	2.14	-0.18	0.99	0.84	1.50	0.34	1.26	0.23	0.88
1991	33.3	9.50	33.3	20.4	33.3	3.75	1.31	4.04	0.06	11.62	2.43	1.11	2.50	0.82	-0.53	0.49	-1.39	0.65
1992	33.3	11.76	33.3	23.9	33.3	3.44	0.35	10.8	0.36	19.80	1.50	1.11	0.89	0.59	-0.32	0.83	-0.23	0.64
1993	33.3	11.46	33.3	23.7	33.3	3.90	0.44	4.92	0.06	13.20	0.98	1.32	1.15	1.11	-0.15	1.06	-0.23	0.76
1994	33.3	10.75	33.3	23.0	33.3	4.84	0.57	7.11	0.14	11.36	0.69	1.55	1.29	1.09	-0.31	1.09	-0.39	0.66
1995	33.3	10.49	33.3	22.6	33.3	4.81	0.60	7.07	0.14	8.99	0.47	0.95	0.83	0.84	-0.07	0.93	-0.02	0.64
1996	33.3	11.75	33.3	27.2	33.3	11.28	1.34	15.1	0.25	8.63	-0.28	1.05	0.92	0.56	-0.37	0.95	-0.09	0.64
1997	33.3	10.37	33.3	33.4	33.3	4.74	0.69	14.7	0.93	13.72	1.15	0.71	0.70	0.28	-0.39	0.32	-0.38	0.41
1998	33.3	8.97	33.3	23.5	33.3	1.54	0.22	0.96	-0.04	5.20	0.45	1.25	0.94	0.98	-0.18	0.64	-0.46	0.58
1999	33.3	7.36	33.3	15.0	33.3	7.09	0.62	11.1	0.19	15.17	0.64	0.24	0.10	-0.16	-0.14	0.47	0.10	0.14
2000	33.3	9.73	33.3	22.7	33.3	3.60	0.61	4.80	0.11	2.89	-0.11	0.23	0.24	0.20	-0.02	0.35	0.13	0.45
2001	33.3	7.43	33.3	15.7	33.3	2.91	0.44	15.3	1.06	4.51	0.23	0.84	0.67	-0.60	-0.93	0.55	-0.23	0.52
82-91	33.3	6.94	33.3	14.8	33.3	4.26	1.08	5.08	0.11	16.05	2.80	1.24	1.49	1.06	-0.17	0.67	-0.68	0.44
92-01	33.3	9.78	33.3	22.4	33.3	4.36	1.48	6.04	0.31	12.91	2.63	0.98	2.11	0.78	-0.36	0.68	-0.64	0.50
82-01	33.3	8.43	33.3	18.9	33.3	4.07	1.72	5.06	0.23	13.82	3.78	1.17	2.73	0.94	-0.46	0.68	-1.15	0.48

Multiple regression equation: V_t/E_t

$$= b_1 + b_2 D_M + b_3 D_H + b_4 BV_{t-1}/E_t + b_5 D_M BV_{t-1}/E_t + b_6 D_H BV_{t-1}/E_t + \varepsilon$$

Variable definitions: See <Table 5>

ε : Error term

*/**: $p < 0.05/0.01$

D_M and D_H are dummy variables for the middle and higher firms group defined by the BV_{t-1}/E_t cutoffs.

Table 12. Market value as a piecewise function of book value controlling for earnings (profit firms group and loss firms group)

Year	Cutoff ratio (%)		Constants				Coefficients				Adj. R ²
	Loss	Earnings	Loss firms b ₁ (t ₁)		Profit firms b ₁ +b ₂ (t ₂)		Loss firms b ₃ (t ₃)		Profit firms b ₃ +b ₄ (t ₄)		
1982	50	50	3.32	0.34	-0.24	-0.32	0.27	0.14	0.28	0.01	0.30
1983	50	50	1.30	0.31	2.81	0.34	0.53	0.63	0.34	-0.22	0.72
1984	50	50	2.28	1.33	2.89	0.32	0.44	1.55	0.37	-0.25	0.84
1985	50	50	4.84	1.26	-1.54	-1.52	0.28	0.58	0.70	0.87	0.77
1986	50	50	9.21	2.08 *	16.94	1.66	0.42	0.58	0.32	-0.13	0.74
1987	50	50	3.89	0.64	3.88	-0.00	1.34	1.13	1.30	-0.03	0.55
1988	50	50	5.24	0.89	-5.07	-1.60	2.19	1.63	2.97	0.59	0.82
1989	50	50	7.49	0.82	15.86	0.85	1.61	1.07	1.42	-0.13	0.56
1990	50	50	2.00	0.37	2.96	0.17	1.30	1.95	1.26	-0.06	0.88
1991	50	50	5.55	2.59 **	10.41	2.01 *	0.76	2.97 **	0.50	-1.00	0.65
1992	50	50	4.54	0.59	14.34	1.15	0.96	1.29	0.85	-0.15	0.63
1993	50	50	4.94	0.78	9.68	0.68	1.17	1.87	1.08	-0.15	0.76
1994	50	50	7.02	1.10	9.52	0.35	1.15	1.69	1.10	-0.08	0.66
1995	50	50	4.09	0.70	7.58	0.53	1.05	1.70	0.94	-0.18	0.64
1996	50	50	13.68	2.40 *	7.94	-0.88	0.66	1.21	0.95	0.53	0.65
1997	50	50	2.07	0.37	13.18	1.80	1.27	1.84	0.33	-1.37	0.41
1998	50	50	3.05	0.63	6.03	0.52	0.88	1.47	0.63	-0.41	0.59
1999	50	50	7.14	0.88	9.29	0.24	0.25	0.20	0.54	0.23	0.13
2000	50	50	2.18	0.51	2.15	-0.01	0.48	0.95	0.35	-0.25	0.45
2001	50	50	4.80	1.00	3.09	-0.33	0.51	0.70	0.56	0.07	0.52
82-91	50	50	5.11	1.82	13.57	2.78 **	1.05	2.32 *	0.68	-0.80	0.43
92-01	50	50	4.85	2.28 *	10.66	2.44 *	0.88	3.59 **	0.69	-0.77	0.50
82-01	50	50	4.87	2.88 **	11.74	3.67 **	0.98	4.34 **	0.69	-1.30	0.47

Multiple regression equation: $V_t/E_{t-1} = b_1 + b_2D_t + b_3BV_{t-1}/E_t + b_4D_tBV_{t-1}/E_t + \varepsilon$

Variable definitions: See <Table 5>

ε : Error term

*/**: $p < 0.05/0.01$

D_t represents dummy variables for the profit firms group defined by the BV_{t-1}/E_t cutoffs.

Table 13. Market value as a piecewise function of book value controlling for earnings, dividing all data into two groups according to the magnitude of earnings/market value (0.00003)

Year	Group ratio (%)		Constants				Coefficients				Adj. R ²
	Earnings management	Higher profit firms	Earnings management firms b ₁ (t ₁)		Higher profit firms b ₁ +b ₂ (t ₂)		Earnings management b ₃ (t ₃)		Higher profit firms b ₃ +b ₄ (t ₄)		
1982	3.0	97.0	124.63	4.98 **	5.16	-4.74 **	0.23	4.07 **	0.03	-2.79 **	0.57
1983	5.1	94.9	30.15	4.40 **	3.21	-3.87 **	0.28	11.39 **	0.23	-0.77	0.75
1984	3.3	96.7	5.51	0.95	3.75	-0.30	0.37	13.01 **	0.30	-1.84	0.85
1985	7.4	92.6	19.11	4.62 **	6.07	-3.03 **	0.65	20.17 **	0.27	-6.05 **	0.85
1986	12.6	87.4	39.98	15.84 **	9.23	-10.72 **	0.27	20.05 **	0.43	1.56	0.83
1987	13.8	86.2	30.88	5.04 **	7.31	-3.55 **	1.03	9.73 **	0.66	-1.47	0.61
1988	23.1	76.9	9.75	2.62 **	10.71	0.21	2.84	32.24 **	0.78	-6.39 **	0.84
1989	30.7	69.3	32.99	7.12 **	11.05	-3.30 **	1.32	19.13 **	0.67	-1.37	0.59
1990	23.9	76.1	15.45	5.22 **	9.32	-1.64	1.23	51.32 **	0.45	-5.29 **	0.89
1991	13.1	86.9	30.17	13.79 **	9.03	-9.00 **	0.37	14.95 **	0.38	0.08	0.73
1992	29.3	70.7	29.46	6.39 **	9.08	-3.29 **	0.80	21.14 **	0.45	-1.44	0.66
1993	32.7	67.3	20.07	5.58 **	9.62	-2.01 *	1.03	28.62 **	0.58	-1.82	0.77
1994	30.7	69.3	23.57	5.76 **	11.32	-2.24 *	1.02	22.77 **	0.53	-2.09 *	0.68
1995	24.8	75.2	23.92	5.84 **	8.52	-2.94 **	0.87	22.03 **	0.48	-1.98 *	0.67
1996	30.7	69.3	38.36	11.34 **	11.61	-5.91 **	0.82	24.22 **	0.27	-3.74 **	0.73
1997	20.7	79.3	46.52	12.38 **	9.29	-8.85 **	0.24	10.26 **	0.13	-1.91	0.57
1998	18.6	81.4	33.59	6.39 **	6.93	-4.58 **	0.52	13.57 **	0.30	-1.69	0.63
1999	8.9	91.1	89.81	11.81 **	6.50	-10.52 **	0.32	3.29 **	0.15	-1.28	0.44
2000	7.0	93.0	51.63	10.04 **	5.69	-8.72 **	0.31	12.22 **	0.10	-6.00 **	0.69
2001	10.3	89.7	43.93	11.34 **	6.06	-9.27 **	0.44	15.29 **	0.17	-4.37 **	0.68
82-91	16.5	83.5	42.82	22.51 **	11.65	-14.95 **	0.67	39.70 **	0.10	-13.87 **	0.55
92-01	21.7	78.3	38.59	26.01 **	10.57	-16.68 **	0.63	50.07 **	0.14	-14.93 **	0.60
82-01	19.5	80.5	40.07	34.23 **	11.07	-22.20 **	0.64	63.72 **	0.12	-20.34 **	0.58

Multiple regression equation: $V_t/E_{t-1} = b_1 + b_2 D_t + b_3 BV_{t-1}/E_t + b_4 D_t BV_{t-1}/E_t + \varepsilon$

Variable definitions: See <Table 5>

ε : Error term

*/**: $p < 0.05$ 0.01

D_t is the dummy variable for the higher profit firms group defined by the BV_{t-1}/E_t cutoffs.

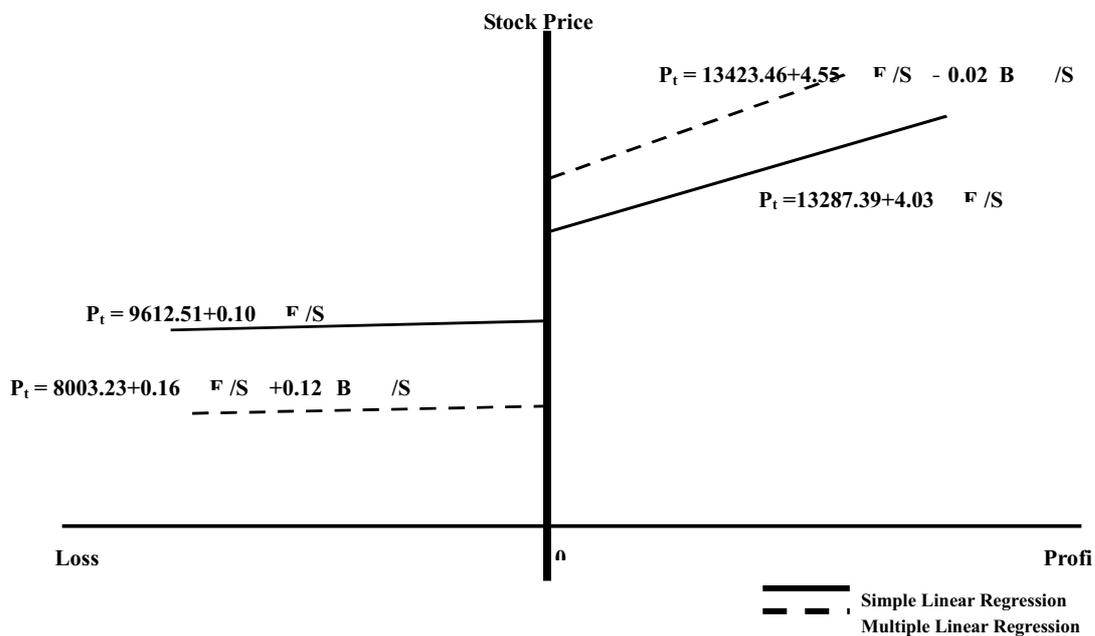


Figure 1. Relative value-relevance of earnings per share and book value per share in profit firms and loss firms.

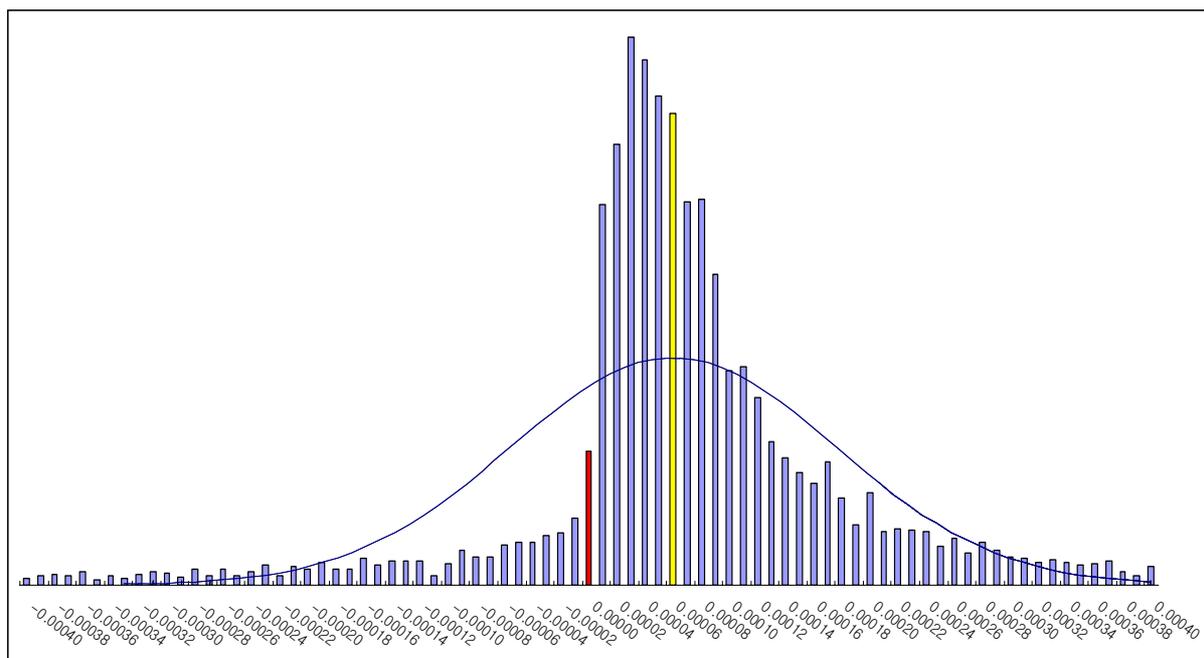


Figure 2. Interval of earnings management to avoid losses



What Brings Diversified Global Economy into Integration-No. 1 of the Series of *Reflections on Economics Law and Ethic Culture Caused by World Financial Crisis*

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Abstract

Focused on the macro level of economics law and ethic culture, this paper aims at finding out the fundamental obstacles for sound development of world economy and providing scientific theory for the establishment of a healthy global financial, economic, legal and social system as well as ethic cultural basis.

Through analysis, this paper draws the conclusion that it is modern science and technology that has brought diversified global economy into integration, hence setting a foundation for further theories in this filed.

Keywords: World economy integration, Working machine, Modern science and technology

For their mutual benefits, 20 major rich nations and newly emerging nations (G20) are propelling cooperation among each other against the current overwhelming financial crisis. However, its scrape in dealing with some short-term symptoms of world economic crisis by having one after another summit faces us with one question--- "Is this long-lasting disease really curable?". (Wolf et al, 2009)

Since human beings live on material basis, our pursuit for material benefits is natural, just like lions on African grassland prey upon zebras and buffalo. However, what drives us to lose control of our evil profit-earning actions despite visible terrible results? Maybe the following analysis will uncover the veil.

1. Fundamental changes have taken place in people's mode of production and life since the victory of Industrial Revolution in the 18th century and the 19th century.

Industrial Revolution has had not only the epoch-making social significance in the history of human creation of material wealth, but has converted human into a vassal of the working machine.

Due to the superb efficiency of the working machine in creating material wealth, people spare no effort to produce more advanced working machines to create greater wealth in order to obtain all benefits including power brought about by material wealth. Chaplin's classic silent movie *Modern Times* expresses the relationship between human and the working machine in an exaggerating but truly. Ever since that time, our inflexible desirability for the working machine has grown stronger with its advance in technology. It is even safe to say that modern working machines are totally indispensable in all fields nowadays. If all those were abandoned overnight, we would experience that "the end of the world" had been coming.

Only a 26-hour power failure in New York in 1977 put the whole city into a terrible disorder. In 2003, another overwhelming power failure confined 350,000 people into lifts and tube and nearly 70 fires broke out within over 29 hours after that. This incident caused as serious damage as that caused by 9.11 Terrorist Attack. During the power failure, normal economic life and people's life were drawn to a stop except for some core government departments, Wall Street stock market, hospitals and some important hotels. According to New York Congress, its government suffered from a loss of \$800,000,000 in its income due to this incident. However, it is estimated by Davi Rosenberg, Chief Economist of Merrill Lynch, that the daily damage caused by it was about \$25,000,000,000 to \$30,000,000,000. What would have happened if there had been not any back-up power?

According to American public opinion, this power failure and some mobile phone failures are caused by capitalists' pursuit for profits. It is reported that Consolidated Edison, Inc. has no interest in renewing New York's power grid or investing in new power plants. Along with other companies, it even went to buy cheap hydropower from Niagara Falls in Canada despite the long distance. The same is true of telecommunications companies, who would rather promote new services to obtain profits than spend money in improving their capacity. As a result, American public opinion calls for American Government to enhance its administration on those important industries such as water, power and

telecommunications by issuing laws and regulations to force relevant companies to put consumers' safety prior to their profits. Despite American Government had given a great efforts, but without enough rigid restrictions between regulations and market discipline, hence failing to prevent such incidents from happening. Instead, another rigid rule of pursuing maximized profits has forced people to give in again and again.

More incidents show that, the dominant status of human beings in the society has been restricted by the modern working machine system deeply, without which human beings will face to horrible results even if not the greatest calamity. It is the internal rigid rule we have to yield to in all situations that has led up to obscurity of the dominant status. Just as working machine was the temptation—fascinated Pandora whom was given by God, we had accepted her, once the box she carried for us was opened, however “all the gifts” flown from her box we also have to suffer, we cannot avoid the results caused by her “gifts”.

2. With the archaic morality and culture considered shackles for social development, which were attacked and rebuilt, human beings have established the dominant status of the working machine for selves.

Renaissance, in Western Europe in 16th century, set a basis for new science, technology and culture under color of “restoring classical culture”, its real substance is a liberation movement of thinking that world led by science and technology. Subsequently, Enlightenment and Reformation Movements brought about by Renaissance put forward Protestantism, which applied to science and technology society. According to the new concept of Protestantism, Bible is the exclusive foundation and authority for believers to believe in, and people through their faith in Christ have their souls saved, hence overturning the long-lasting Soteriology of salvation through good works and the ultramontanism. As a result of Reformation Movements, the nations was out of the control from the religious theocratic thought, for the future development of science and technology as the core of human rights laid the ideological and cultural foundations.

Two centuries passing by, no matter how admirable the banner of human rights by eastern scollors held by the western countries is, it has to give way to modern working machines or financial markets in order to fulfill these countries' pursuit for material benefits. The former banner of human rights held high for several centuries had gradually been an accompaniment of the banner of economic benefits since late 20th century.

For a long time, every one in the modern society has to obtain rigid training in social education as well as pattern of thought which began to be constructed under the dominance of the working machine from Industrial Revolution. Therefore, it is the rule and truth of the universe as well as an indispensable part of modern human civilization to make such education system accepted and followed by all global. In such a huge system including the education system ranging from kindergarten to post-doctoral education, a complete set of subject categories and some institutions related to examination, upgrading, elimination, graduation, earning officially-recognized certificates and so on. Trained in the above system, people in the modern society carefully maintain and promote the modern social system of working machines which is guided by advanced technology from obtaining energy resource to using electronic intelligence. Those who deny the dominance of modern working machines will become the enemy against the whole society and those who refuse to receive such education or who don't receive enough education will have no access to modern civilization or be eliminated by the modern society. In a word, with no exception, all changes in traditional culture and morality have to serve the purpose of developing the science system dominated by the modern working machine, human beings work hard in pursuit of maximized profits. This applies to any nation with any kind of ideology, western countries or eastern countries, developed or developing, capitalist or socialist, autocratic monarchy or constitutional monarchy.

3. With agricultural economy and monarchy overturned by market economy and democracy, new economic, political and legal institutions have become the catalyst for the dominance of the working machine over the world and the expansion of human's wish for wealth.

Break away from the Vatican's political and economic control after Enlightenment, a new economic pattern and its corresponding social system, especially the legal protection system of this economic pattern, occurred in Western Europe and then swept the entire world. It is only appearance that all the new systems emphasize on human rights and embody the rationality of human-oriented, in essence, all the systems play this role of disintegrating the dominant status of people in the of the physical world, drive human out of controlling selves to pursue and enjoy material wealth, eventually became a vassal of the modern way of life and wealth, even slaves.

Those developing countries adopting democracy, republic and constitutionalism in Asia, Africa and Latin America, how dictatorship, privilege, or corruption soever, one thing is common to all countries that fully develop modern production and life style in which modern working machine is of dominance, no matter whether they have real democracy or not. Despite the differences in politics between developed countries and developing countries even after their adoption of democracy due to their obvious differences in nations' history, traditional culture, custom, and so on, all of them have similar economic pattern. In other words, the market economy pattern in developed countries is copied by developing countries including China which has one fourth of the world population, and believe in Marxism and socialism in

ideology. Such a duplication of the production mode will certainly lead to the follow in the mold of life and consumption. Actually, some wealthy people in developing countries even dwarf those world-class billionaires in developed countries in consumption. (2009)

One Masterpiece the Rise of the Western World: A New Economic History. By North and Thomas pours a flood of light on the rising social and legal institutions after Industrial Revolution. that is the reason why economic development and increase rapidly in per capita income first took place in Western Europe after the 18th century since they had more effective economic organization and legal system to protect individual property safety, which a relatively complete economic organization had ran nearly a thousand years since the Middle Ages as the long-term evolution results. Holland and U.K. were particularly outstanding among them since their people had greater capacity to resist against oppression, monopoly and extortion of local powers in politics, religion and city guild forces than those in Spain, France and elsewhere in Europe. As a result, the security of persons and property was safeguarded better there and people had more freedom to operate their enterprises. (1973)

American economists Rosenberg and L.E. Birdzell were famous in the world for their research on technological development history. In their book How the West Grew Rich: The Economic Transformation of the Industrial World, it is proven by conclusive facts that China and Arab countries went ahead of West Europe in science and technology until the 15th century, but it took western countries several hundred years only to surpass eastern economy civilization very much which had been developed for thousands years. A social mechanism which is conducive for continuous innovation was established in Western Europe in the late Middle Ages, which is the important reason. The industrial revolution took place in late 18th century with a lever system as the basis, such a lever system was formed in the late medieval commercial revolution. For example, the double-entry system was invented in the 13th century, a corporation system emerged in the early 17th century, also the modern Civil and Commercial Code issued, until the final victory of the capitalist democracy system succeeded in the world. It is impossible to win Industrial Revolution without such an institutional protection of economic, political, legal institutions. It is safe to say that the new western economic, political and legal institutions since Middle Ages have strengthened the dominance status of modern working machine over the whole world and intensified the longing of human being for material wealth. Just like what is expounded above, no matter what a country is, any country must obey the powerful modern working machine system. (1987)

Conclusion

Who has brought about diversified global economy into integration, neither America nor the European Union, but the Pandora whom was presented by Western Industrial Revolution that was born in the late Middle Ages — the working machine, namely, the birth and development of modern science and technology.

Notes

Note 1. Relevant details can be obtained in the following articles:

Wolf, Martin. (2009). Why did G20 fail to save world economy?. *Financial Times*. [Online] Available: <http://www.ftchinese.com/story/001025575/en> (April 1).

Giles, Chris. (2009). A pattern emerges. *Financial Times*. [Online] Available: <http://www.ftchinese.com/story/001028850/en> (September 22).

Guha. Krishna (2009). Global challenges have to be tackled. *Financial Times*. [Online] Available: <http://www.ftchinese.com/story/001028831/en> (September 21).

Note 2. By breaking the former scholasticism centering on theology, Renaissance prepared ideological liberation for Industrial Revolution. During it, a variety of folk philosophy rose represented by Bacon, Desiderius Erasmus and Machiavelli, hence promoting the development of political theory, setting a foundation for later Enlightenment, encouraging the rise of many thinkers such as Thomas Hobbs, John Locke and Jean-Jacque Rousseau, establishing theories including “natural rights”, “social contract”, “human rights” and “separation of the three powers” and so on.

Note 3. In order to fight against Former Soviet Union’s supremacy, the United States established diplomatic relations with China in 1970s after 30-year antagonism by accepting the requirements given by Chinese Government such as “breaking off its relations with Taiwan” “withdrawing its army” and “annulling former unfair agreements”. In the following 30 years, their diplomatic relations were developed to dialogue and cooperation, making their mutual economic interest closely tied. The same is true of the relations between China and the European Union. Despite the impact of the incident of human rights in China, their relations remained healthy due to the dominant role of economic benefits during the course.

Antagonism in ideology is not the nature of the current problem because the opinion of human rights is by nature intended to clear the way for the working machine dominating human beings. Anyone who was against the western opinion of human rights will have his opinion changed once in the social system dominated by the working machine. The only difference between the two sides lies in that one has no democratic constitutionalism to accelerate the

development of the working machine system. Therefore, some necessary measures need to be taken until such a lever system is completely established. This is explained in detail in the 3rd part of the paper.

Note 4. More detail can be found in *Luxuries Gaining Popularity in China?* (<http://content.chinasspp.com/News/detail/2009-2-24/71180.htm>) published on February 24th, 2009.

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A Model of Clustering Process in Low Income Economies

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Abstract

Business clusters has been regarded as one sources of competitive advantage. Argument of the advantage developing clusters in low economies has been learned that in developed economies. With such advocacy emerging about the evidence for these in developed world, exploration for the review of the experience in developing economies is required. A model of the development path of business cluster in developing world has been produced. The evaluation of such model in low economies needs to be taken.

Keywords: Model, Business cluster, Low economies

1. Introduction

The experience of agglomeration and clustering of small scale industry form this of organization have contributed to successful performance of many small businesses in previous studies(Schmitz, 1995, Schmitz & Nadvi, 1999). More importantly, since the European experience, particularly Italian cases, has adopted to be the main reference resources in studies on clustering in low income economies (Schmitz, 1995). However, Schmitz (1995) claim that it is widely common to be a mismatch between the worldwide consideration on the European experience s and what is actually known about them. He further argues that the European clustering situations have undergone changes since they came to prominence. In reality, since the 1990s, for example, Italian business clusters face many new challenges and they are not performing as well as during the 1970s and 1980s (Whitford, 2001). Generally speaking , a significant difference between low income economies and high income economies appears to be the market niches on which they focus (Wang, 2006). In high income economies, there is the “high road” or “strong competition”. High income economies specialize in higher-value niches so these clusters are dynamic and require high levels of innovation and function flexibility and good conditions (Nadvi & Schmitz, 1994; Schmitz, 1995). Clusters in low economies on the other hand appear mot of them at the market where there are less dynamic and where competitiveness is determined by price, namely, in “low road” or “weak competition”. Another remarkable fact which distinguishes business clusters in low income economies form the advanced nations is the abundance of workforce (Schmitz, 1995a).Not surprisingly, the business clusters face two contrasting growth paths between low income and high income economies (Schmitz, 1995,1999).

By means of a highly suggestive theoretical model proposed by Schmitz (1995),which provides an interpretation of cluster development simplifies diversity while claiming to capture key transitions in growth within low income economies(H. Schmitz & Nadvi, 1999). This model explain why some clusters have capacity to respond to opportunity and crisis and other not (Schmitz, 1999). This model emphasizes to how advantages received by an individual cluster vary with the stage of incipient and more advanced stage of industrialization in low income economies.

2. Clustering Process in Developing Countries

In the early stage of industrialization of low income economies, small scalebusinesses face many the growth constraints (Amin, 1994; Schmitz & Nadvi, 1999). In the paper published in 1982, Schmitz generally classifies the growth constrains into categories: those of an internal nature (entrepreneurship management) and those of external nature (access to resources, exploitation by large scale firms). On the one hand, in term of internal factors, the importance of entrepreneurship in low income economies' industrialization is emphasized by Schmitz (1995). A lack of entrepreneurial and managerial ability is as one of major of growth constraint. In detail, such constraints mainly reflect in the fields of motivation, drive, adaptability; organizational skill; and technical skills (H. Schmitz, 1995). On the other hand, Schmitz (1995,1999) briefly summarizes the growth of constrains of small scale industry deriving from the fields as following

- (a) exploitation;
- (b) subcontracting;
- (c) access to markets ;
- (d) technological gap;
- (e) access to raw material;
- (f) access to credit; and
- (g) government discrimination.

In summary, Schmitz (1995) proposes that access to clusters advantages for individual firms first are able to obtain simply within its geographical reach. Business clusters may simply emerge due to that certain bulky resources are available at certain location only (Sandee & Rietveld, 2001), to be the advance of buyers as there are likely to be transaction cost reduction if they can products at certain location (Klapwijk, 1997). Also, such kind of unplanned cooperation among small producers may occur when there are sudden financial shortage or when there are rush orders that need extra workforce at a short situation (Schmitz, 1995a). In addition, extended family networks or social tradition are especially important when small businesses are all operating in fixed locations where they have been living for generations. At its most basic level, cooperation within clusters are unplanned (H. Schmitz, 1995). Each business within cluster has equal access of information of the economies of geographic concentration. To some extent, individuals can benefit more from their relationship among firms within clusters basing on joint actions. Such planned action leans upon arrangements among selected participants in clusters. Noticeably, clustering benefits are unevenly distributed owing to their various willingness and ability of businesses to involve in joint action. As a matter of fact, probably the majority of business clusters never engage in joint action.

At outset of a cluster (unplanned action), firms seems to be encouraged information sharing and opportunities for learning new technique and designs (McCormick, 1999). Some firms can benefit directly though market and contracts or indirectly through public good-externalities spillovers types of mechanisms (Ferrero & Maffioli, 2004). To some extent, being unplanned action, these benefits include human resource pooling, localization economies, access to information, performance benchmarks, and specialized knowledge on technologies and markets, availability of infrastructure and the business environment and complementary products and market access (Ferrero & Maffioli, 2004).

In low-income economies, the basis of local (generally small) enterprise is one out of two ways to achieve industrialization (H. Schmitz, 1995). To achieve industrialization, there are two basic elements: the mobilization of unused local resources (financial and human) and the effective use of these resources (Schmitz, 1995). Due to constraints of small-scale businesses, it is impossible for a producer to acquire equipment for the entire production processes. Therefore, one firm is able to specialize in some aspect of the productions process while another may turns form productions to trade in input final products(Schmitz, 1995a). Meanwhile, specialized workshops which can repair and upgrade existing machinery further help to reduce technological discontinuities (Schmitz , 1995). In addition, small amounts of human capital can be made to count (Schmitz, 1999, p.1505). One small business's investment in specialized skill render returns due to other businesses firms have invested in complementary expertise (Schmitz, 1999). Clusters makes easier for the essential changes for the need of industrialization to occur (McCormick, 1999). For example , trader many appear because they heard of the existence of the cluster (McCormick, 1999). Therefore unplanned advantages enables firms to advanced by taking small and calculable risks (Schmitz, 1995). To some extent, unplanned action facilitates the mobilization of financial and workforce, that it breaks down that business activities of small scale enterprises into small riskable steps, that the firm of one create of foundation for the other, that ladders are made which enhance small firm to climb up (Schmitz, 1999).

The external economies (normally related to labour –marketing polling, inter-mediate input effects, technological spillovers and market access (see example McCormick 1999) may promote clusters as long as market, technology ability and organizational form keep stable. In contrast to high income economies where clusters may occur owing to agglomeration economies alone (Schmitz, 1995), agglomeration economies relying on themselves are unable to enhance clusters to ride out significant transformations in products or factor markets (Schmitz, 1999a; H. Schmitz & Nadvi, 1999).

This stylized growth model proposed two prerequisites to exploit the limits to the potential formation of clusters. One is existence of trade network, another is the existence of effective sanctions and trust (Schmitz & Nadvi, 1999). Any gap in either of these basic of prerequisites will affect the mobilization of financial and human resources of clusters. A cluster that is restricted in its local markets are likely to experience involutionary rather evolutionary growth (Schmitz & Nadvi, 1999). A cluster tends to attract traders to reduce to the transaction costs. To some extent, trading networking—a component of personal or economic interaction affects individual performance directly as it generates information on the ability of technologies and marketing (Mobig, 2005).In reality, not all effective trade links to larger

distant markets exist. For example, in Indonesia where trade networks are highly developed, cluster are not ubiquitous (Weijland, 1994). He concludes in his paper that rural clusters which are well connected to distant markets by traders have higher earnings than those who are not. Similarly, in the areas of East and Southern African countries, poor distribution networks have been accounted to be one of reasons for the comparatively weak development of clusters. Another condition related to clusters emergence and survival is the existence of effective sanctions and trust. Sanctions and trust play an significant role both within clusters and their trade networks (Humphrey & Schmitz, 1996; Nadvi, 1999b). A deepening specialization leads to a high level of interdependence among cluster firms. From the studies of East Africa, McCormick (1999) emphasizes that enforcement and business collaboration are often stymied by the absence of highly-developed legal system. In poor communities, including small industry clusters, traditional ethic networks play a substantial role in a substantial role of premises on which to operate economic activities, in the entry and emergence of small business clusters (Mobig, 2005). Not surprisingly, thus local information mainly are controlled by the ethic division or family bonds. "Strangers" connect smoothly with such low income communities unless not only they interface successfully interface with the traditional information channels but also they incorporate rightly locally generated information. Based on this situation, traditional social network have been classified into one of limits stymie the development of cluster growth (Morfessis, 1994).

From the case studies of African clusters, it shows the accumulation of capital and skills remains lows (McCormick, 1998). Similarly, as Schmitz (1999) emphasises that unplanned action are not sufficient and that planned action is the second critical element to explains growth and competitiveness. As a result, a significant transition point should be appeared to consciously pursue joint action. The turning points from the stage of unplanned action to planned action derive significantly from the challenge of liberalization and globalization faced by clusters (Schmitz & Nadvi, 1999). Joint action can " promote competitiveness, accelerate innovation and enhance prospects of growth for the clusters as a whole...also improve the ability of the cluster of respond and collectively to exogenous pressures and capitalize on new opportunities" (Nadvi, 1999).

According to Schmitz (1995), a table is proposed as following (see table 1):

Such joint action in low-income economies can be of two types: individual firms cooperating and firms jointing forces in business associations, producer consortia and the like (Schmitz, 1997). For example, sharing equipment can be classified into the item of bilateral action. If firms are taking similar business activities, the cooperation between two firms is horizontal; if they are engage in different links of the production chain, the cooperation is vertical. Multilateral cooperation involves a groups of firms joining together in some kind of sectoral association of pursue common goal.

According to Schmitz (1995, 1997) and (Nadvi, 1999a), there are at least four general forms of joint action (Ferrero & Maffioli, 2004) as following:

- joint action within *vertical linkages*, including backward ties and networks with suppliers and subcontractors, and forward ties with traders and buyers
- joint action within *bilateral horizontal linkage*, between to more local producers. This can be include joint marketing of products, joint product development, and the exchange of know-how and market information.
- joint action within *multilateral horizontal linkage* among a large number of local producers, particularly through cluster-wide institutions. This include cooperation in business associations and business development service centres.
- public-private partnerships.

More importantly, in well-developed clusters there may be multilateral institutions raging from trade associations and sale consortia to political lobbies (Albu, 1997). Examples of collectively inspired action may include: opening new market through trade fair; improving local infrastructure, and organizing technical training.

Briefly speaking, four common defining characteristics of joint action are summarized

- (1) while unplanned action tend to be cluster-wide, planned action tends to be selective;
- (2) greater collaboration tend to be positively associated with improved performance;
- (3) In contrast to unplanned action, unplanned action has led to differentiation. In other words, the performance of individuals within the stage of joint action diverges according to their capture of the benefits from planned action.

2.1 Reflection on the Model

Public Agency Intervention

This model does not ignore the role of public agency completely. Schmitz (1995, p.554) argues "governments or government-sponsored institutions cannot create an industrial organization which competes on the basis of collective efficiency". Schmitz(1995) claims that public agency can play an important part in helping industry to expand and innovate once the private initiative has led to a minimum concentration of industrial activity and know-how. Schmitz (1995) pointed out that the emergence of business clusters in European countries was spontaneous. In other words, that

European industrial districts (clusters) were not result of planned action of a local or regional industrial strategy. To some extent, it seems that clusters in European went through two stages : first, spontaneous emergence and growth, and late public agency intervention growth (Humphrey & Schmitz, 1996). There are limitations when policy makers in low income nations aim to apply the experience European nations. Institutional policies adopted in European clusters were initially about promoting existing and dynamic clusters of firm to run better, or to respond new challenges (Humphrey & Schmitz, 1996). Consequently, where clusters with a deep inter-firm division of labour already exist in low income economies, the European experience can be cited directly (Humphrey & Schmitz, 1996; H. Schmitz & Nadvi, 1999).

However, the major policy challenge in low income economies is the period of infancy or the absence of linkages features of the successfully business clusters (Humphrey & Schmitz, 1996). Subsequently, in such situation, public intervention will have to attempt to create the kinds of interaction within clusters. Meanwhile, policies in low income nations will also have to focus on what measures can be applied to small scale industry which are not concentrated together in large, sectorally, specific agglomerations (Humphrey & Schmitz, 1996).

Value Chain Governance and Globalization

With the deepening integration of developing countries into global markets, firms in such countries face increasing competitive pressure (Humphrey & Schmitz, 2002; Schmitz, 1999). Both the cluster and value chain approaches emphasize the importance of upgrading in order to ace increasing competition in global markets (Humphrey & Schmitz, 2002). Therefore, one of most remarkable development of this model, Schmitz has suggested need to be made since he first proposed the model. He has drawn attention to clusters that failed to make the transition to planned coordination and has linked clusters to value chain governance. From the history of high income nations we know of clusters losing their former competitiveness (Schmitz & Nadvi, 1999). The unprecedented competitive pressure arising from increasingly globalized product markets make a significant transition point from unplanned action to planned action. In the currently prevailing enthusiasm for local producers to insert themselves into global value chains, lashes of interest between the two sides tend to neglected (H. Schmitz & Nadvi, 1999). In other words, global competitions bring them together, namely a requirement of joint action. More specifically, a strong case of the benefits of clusters in enhancing low-income-country industrialization has been developed from examples that have adapted the demands of industrialized nations(see Nadvi, 1999; Schmitz, 1999). Such examples have focused on by global development agencies to justify their support to clusters (Humphrey and Schmitz, 1995). Take an empirical case study as the illustration. Nadvi (1999) conducted a deliberated case study on Sialkot, a area with a population of about 660,000, which is a Pakistan's leading centres of manufacturing exports. It's exports are mainly focused on three industrial sectors—namely, sports products, leather garments and stainless-steel surgical instruments. In the past several years, this region has attracted the eyes internationally result in employing child workforce in manufacture of soccer balls. The cluster of surgical-instrument cluster is not free of child workers but quality management, rather than employment conditions, has been its challenged recently. The food and Drug Administration (FDA) of America, for example, restricted imports of surgical instruments from Pakistan in 1994. Due to the America is major exporting market , the decision from the US put the cluster disadvantage. Similarly, such restriction occurred in 1989 as well, and it indicated a worsening situation. To the extent, the 1989's embargo is result in product-quality concerns; the concerns in latter embargo had sped to quality assurance and demands that exporters show evidence of good manufacturing practice. Furthermore, through this case, an account of the crisis is offered to show how cluster participants overcame the restrictions and recovered their overseas markets. At the same time, Nadvi (1999) indicates that the model of organization –cluster facilitated resolution of the crisis in spite of that some weaknesses and shortcomings in the performance of the clusters are recognized. By 1999, according to the estimation of Nadvi (1999), the Sialkot surgical-instrument involve about 300 producers, surrounded by more than 1,500 process specialized subcontractors and about 1,000 other supporting establishments. Furthermore, based on various marketing demands, the cluster comprises two market segments. One concentrates on high-quality products, reusable instruments made with imported raw material and mainly sell to European market; the other producers disposable instruments from locally made raw material form recycled and scrap metal. In the American market, the increasing demands for disposable instruments are the reaction to the rising cost of sterilization and problems of contamination from used instruments. For FDA, the quality of raw material became the first concerns. Fortunately, this was solved by manufacturers by negotiation with the locally based suppliers and successfully addressed in the early 1990s.

However, the FDA suspended exports pending exporters receiving certification that they obtained “good manufacturing practices” in May 1994. By December of that year, a large scale firm in this cluster had received such certification. Most importantly, as evidence of cluster competitiveness, the sectoral association called the Surgical Instrument Manufacturers' Association (SIMA) sought to government support to appoint an American quality-assurance consultant company. Meanwhile, the certificated firm was responsible for providing the training aiming at helping other producers to attain the FDA certification. Consequently, 3 years later, in 1997 75 manufactures had qualified to export with the total over the following year due to the training programme. Noticeably, the role of sectoral association and crisis can be considered as impetus to improve the inter-firm cooperation to concentrate on quality affairs. In reality, prior to the

1994 restrictions, communication among buyers and suppliers, and assistances to subcontractor had already frequent on matters associated to issues on organization and quality. After 1994, more concerns are concentrated on quality improvement.

Significantly, during this crisis, subcontracting matters had been regarded as more demanding, especially with respect to the documentation of be completed at a single production stage. A large number of subcontractors, for example, were unaccustomed to new quality-assurance system, and thus, exporters had to help these subcontractors make a major adjustment to their previous production practices. To some extent, the survival of subcontracting suggests recognition of its contribution to the overall functions of this cluster. In addition, producers commenced to reduce the number of subcontractors and to ring some previously out-sourced work in-house. Even many large firms made a substantial cutback in the selection of subcontractors.

To the extent with the relationship with overseas buyers, one significant outcome of import restriction is that the independent certification of producers may mean that buyers estimate less risk in 'arm's length' relationship than before. For example, a powerful buyer can withdraw the technical help a large number of suppliers. At the same time, the purchase volumes could be stable or similar. However, due to the availability of the alternative sources of support, suppliers, thus, their quality-control are cut back. Producers have been eager to widen their market ranges as an assurance of over-dependency on a single market. To some extent, in some situation, producers may be dissatisfied with a single buyer are often required to adapt exclusive supply arrangements without being offering higher prices or lacking opportunities to diversify into high-value products.

Turing to the function of governmental intervention, nonetheless, during the development of this cluster, a public agency intervenes to spread participation in planned action. As can be seen, SIMA's successful acquisition of government funding to help related training enabled cluster producers to attain quality certification. The ability of such sectoral association to seek the support is the result of change in the association's executive committee to be more attention on the interests of small firms in need of training assistance. Otherwise, these firms would have to purchase form large firms. In addition, since as quality certification had widened the choices of suppliers, the relationship between individual buyers and suppliers weaken than previously existed. Unfortunately, its later story is that this cluster failed to upgrade its manufacturing to the point where its producers trade directly with brand-name suppliers. Most of buyers are distributors or wholesalers rather than manufacturers which is due to lower prices and exclusion from potentially significantly sources of technological and manufacturing assistance (Nadvi, 1999).

Conclusion: An Evaluation of the Model

Gaps and uncertainties lies in the stylized account of business clusters in low income economies beyond he questions already existed. One limitation is, for instance, are reference to the relationship between a specific clusters and its external environment. An absence of evaluation of how specific industry sector and market conditions influence the economies activities, the function of a cluster can be weaken or exaggerated. Furthermore, due to that this model focus on overlook identifying stages of clusters growths, this model to lack differentiation between types of clusters. For example, there are numerous clusters can be classified raw material-based ones. The time raw material run out is the time of disappearance of a cluster.

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Table. Forms of joint action in clusters

	Bilateral	Multilateral
Horizontal	e.g. Sharing Equipment	e.g. Sectoral Association
Vertical	e.g. Producer and user improving components	e.g . Alliance across value added chain

Source: Schmitz (1995).



Financial Development and International Trade in Manufactures: An Evaluation of the Relation in Some Selected Asian Countries

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Abstract

This paper analyzes the relationship between the level of financial development of a country and its comparative advantage in international trade. In fact the link between the two notions seems to perform in a two-side direction: A number of researchers have stressed the key role a country's financial development is likely to play in its specialization in international trade, thus leading to a comparative advantage in the financially intensive goods, alongside capital and human resources. At the same time, it is argued that countries with comparative advantage in financially intensive goods experience a higher demand for external finance, and therefore financial development. In this paper, we aim to check the existence and the sense of the relation between the two variables within East Asian countries. A time-series approach using the VAR Model has been used to provide long run relationships between financial development and international trade in manufactured goods. Our main result suggests that for most of the countries considered, international trade in manufactured goods enhances financial development.

Keywords: Financial development, Heckscher-Ohlin model, VAR model, Trade openness, comparative advantage, Cointegration

1. Introduction

Usually, classical theories of international trade explain the comparative advantage of countries through their differences in technology and factor endowments. For those theories, trade is profitable because it allows countries to export goods for which production process uses more intensively the relatively abundant factors of the economy and import goods for which the production process uses more intensively the relatively rare factors of the economy (Heckscher-Ohlin model)(Note 1).

Recent studies (Krueger and Obstfeld, 1994) however consider that countries engage in international trade in order to benefit from economies of scale.

Financial development for its part is one of the most important resource allocation mechanisms in a capitalist economy (Ribeiro de Lucinda, 2003). Many economists think that the efficiency with which financial resources are channelled by the financial system is very important for the economy. Since the primary works of Bagehot(1873),Hicks(1969),and Schumpeter(1912), number of studies(Gurley and Shaw,1967; King and Levine ,1993a,1993b,1993c; Diamond,1984; Levine,1997, 2005; Levine and Zervos,1996; Beck, Demirgüç-Kunt and Levine,2000; Chinn and Ito, 2005) have been conducted to show the positive impact of financial development on the overall economic performance in general, and on economic growth in particular.

Levine (1997) centres his argumentation on the functional approach of the financial system. He considers that financial markets and institutions may arise to ameliorate problems created by information and transaction frictions. They then facilitate the allocation of resources across space and time, in an uncertain environment. Levine breaks this primary function into five basic functions. Specifically, financial systems

- facilitate the trading, hedging, diversifying, and pooling of risk
- allocate resources
- monitor managers and exert corporate control
- mobilize savings, and

- Facilitate the exchange of goods and services.

For him, a higher financial market development degree is likely to lead to a further reduction of transaction costs and the mitigation of the effects of asymmetrical information, increasing therefore the allocative efficiency of the economy.

Rajan and Zingales (1998), using accounting data from the American market, established the existence of a strong positive relation between needs of external funds for firms and their growth. It is also shown that this effect is bigger in countries with a high degree of financial development. According to these authors, one of the main consequences from an unequal financial market development one must expect would be an inter-sectoral difference in export pattern of manufactured goods.

While a large literature suggests that financial development fosters economic growth, considerably less research examines the cross-firm, cross-industry distributional effects of financial development. Some theories imply that financial development boosts economic growth by disproportionately fostering small firm growth (Beck, Demirgüç-Kunt, Laeven, and Levine, 2005). If smaller, less wealthy firms face higher credit constraints than large firms face due to greater informational barriers or high fixed costs associated with accessing financial system, then financial development that ameliorates market frictions will exert an especially positive impact on smaller firms (Banerjee and Newman, 1993; Aghion and Bolton, 1997). In contrast, another line of research suggests that most small, less wealthy firms, especially in poor countries, cannot afford financial services, so that financial development disproportionately facilitates the growth of large firms (Greenwood and Jovanovic, 1990). The Greenwood and Jovanovic's hypothesis also apply for poor people or poor households. These authors state that getting involved in the financial sector or subscribing to financial services such as screening and risk pooling requires an initial set-up cost. For them, poor people are not in a position to incur this cost. Although empirical support for Greenwood and Jovanovic (1990) proposition has been mixed (Li et al., 1998; Rajan and Zingales, 2003), their contribution raises the possible link between financial development and poverty alleviation (Note 2). In a recent work, Daly and Akhter (2009), using a new methodology called fixed effect vector composition (FEVC) in a sample of 54 developing countries, demonstrate that financial development has direct and indirect effects on poverty alleviation (Note 3).

In general, if there is a strong positive relation between financial development and economic growth, there are large differences across countries and time, in the quality of financial services and the type of financial instruments, markets and institutions that arise to provide these services (Levine, 1997). Yongfu and Temple (2005) notice that in general, entrepreneurs and firms appear to have easier access to external finance in some countries than in others. And when industries differ in their reliance on external finance in the sense of, for example, Rajan and Zingales (1998), these differences would be expected to interact with cross-country variation in financial development to serve as a source of comparative advantage on trade. This leads to the notion of "Financial Comparative Advantage", as formalized theoretically by Kletzer and Bardhan (1987) and Baldwin (1989).

Baldwin (1989) developed one of the first models in which financial markets are a source of comparative advantage. He shows that in economies with better developed financial markets and therefore better possibilities of diversifying risk stemming from the demand shocks, firms producing the risky good face lower risk premium and therefore lower marginal costs. Countries with better developed financial markets and therefore diversification possibilities thus specialize in the risky good.

While Baldwin stresses the risk diversification function of financial markets, Kletzer and Bardhan (1987) focus on the role of financial institutions and markets in channelling external finance to industries that are in need of it. They present two international trade models in the Heckscher-Ohlin tradition with two countries, two sectors and two factors. They show that the country with a lower level of credit market restrictions specializes in the sector that uses external finance. The country with the higher level of credit market restrictions faces either a higher price of external finance or credit rationing and will therefore specialize in the sector that does not require working capital or external finance.

The research line concerning the link between international trade and finance might be understood as related to this vast field of research dealing with the relationship between financial development and economic growth. More generally, the various functions accomplished by the financial system might be determinant in the pattern of specialization of a capitalist economy in several ways (Ribeiro de Lucinda, 2003).

For instance, a well-developed function of channelling of funds between savers and borrowers may enable firms to exploit more fully the scale economies in different industries. Thus, countries with a well-developed financial system tend to show comparative advantages in industries with economies of scale.

On the other hand, a more efficient financial sector in term of risk diversification can enable firms to easily bear Research and Development costs. As a consequence, these firms and countries shall show comparative advantages in goods intensive in R&D.

Finally, according to the monitoring and control functions performed by the financial market, a sophisticated financial system allows a better resource allocation due to lower monitoring costs. The monitoring action would have a positive

effect on economic productivity, increasing corporate control and mitigating agency problems, as shown by Diamond (1984).

In this paper, we then investigate on a possible relation between financial development and international trade. By so doing, our paper is closed to Beck (2001, 2002) who is the pioneer of this field of research. But since we are also interested as Beck, on the possibility of a reverse causality from manufactured trade to financial development, our study also has some similarities with those produced for instance by Rajan and Zingales(2003) or Do and Levchenko(2007), at least theoretically.

In fact we try to solve the scepticism on the sense of the relationship between the two variables using the well-known vector error correlation methodology (VECM). This enables us to derive long-run relations between financial development and international trade, and even short term relations. The rest of the paper is organized as follows: Section 2 provides a review of the literature on the link between financial development and international trade. In section 3, we present our methodology and describe our data. Results are given in section 4, while robustness tests are run in section 5. Section 6 concludes.

2. Financial Development and International Trade: a Review of the Existing Literature

The various studies interested in the relationship between financial development and international trade can be divided in two main streams. The first line of research deals with the effect of financial development on international trade, while the second focuses more on the reverse causality between these two variables.

Thorsten Beck (2002) is the one who launched researches on the possible relation between financial development and international trade. Exploiting the conclusions of Baldwin (1989) and Kletzer and Bardhan(1987), Beck(2002) studies a possible link between financial development and international trade. In the theoretical part of his paper, he first builds a model in which countries endowed with a well developed financial system tend to specialize in sectors with increasing returns to scale. His empirical test builds on the assumption that the production of manufactured goods exhibits higher scale economies than the production of agricultural goods or the provision of services. Using both cross-country and panel estimations in a sample of 65 countries, he tests the hypothesis that countries with a higher level of financial development experience higher export shares and trade balances in manufactured goods. Then in a second study (Beck,2003) the author verify successfully the hypothesis that countries with better developed financial sectors have higher exports and trade balances in industries that rely more on external financing. Indeed, if in every paper, the methodology used leads to some goods results; it doesn't help to better understand the concrete relationship in each of the countries in the sample

Like Beck (2002, 2003) many other economists have studied the effects of financial development on international trade (e.g. Slaveryd and Vlachos, 2005; Ju and Wei, 2005; Wynne, 2005; Becker and Greenberg, 2005; Ribeiro de Lucinda, 2003). Their main conclusions are in line with those of Beck: Differences in financial development across countries have become beside differences in technology and factors endowments, a source of comparative advantage and specialization in international trade.

In the meantime, various works are being conducted by number of authors to study the reverse relation between financial development and international trade. Authors (e.g., Yongfu and Temple, 2005; Slaveryd and Vlachos, 2002; Aizenman, 2003; Aizenman and Noy, 2004a, 2004b; Ginebri, Giacomo Petrioli, and Sabani, 2001) consider that increases in goods market openness are typically followed by sustained increases in financial depth. Rajan and Zingales(2003) argue that trade openness, especially when combined with openness to capital flows, weakens the incentives of incumbent firms to block financial development in order to reduce entry and competition. Furthermore, the relative political power of incumbents may decrease with trade as well. Thus, these authors argue that trade has a beneficial impact on financial development. Braum and Raddatz(2005) explore the political channel further. They demonstrate that countries in which trade liberalization reduced the power of groups most interested in blocking financial development saw an improvement in the financial system. When on the other hand, trade opening strengthened those groups, external finance suffered. While these two studies are about how trade affects the supply of external finance, the paper of Do and levchenko(2007) focuses instead on the demand side. It then can be considered as complementary to Rajan and Zingales(2003) and Braum and Raddatz(2005). Do and Levchenko(2007) argue that financial development is endogenous and that it is determined in part by demand for external finance in each country. Comparative advantage in trade will affect a country's production pattern, and in turn its demand for external finance. They consider that countries specializing in financially dependent goods will have a high demand for external finance and thus a high level of financial intermediation. In contrast, the financial system will be less developed in countries that specialize in goods not requiring external finance. Do and levchenko(2007) use a simple model in which goods differ in their reliance on external finance to illustrate their view. Then they demonstrate this effect empirically, using industry-level export data and information on each industry's reliance on external finance. Our paper might be thought as a continuation of the overall literature aiming at relating financial development and trade. We internalize both the empirical results of the above two lines of research to consider financial development and international trade both as

endogenous. This enables us to derive long-run relationship between the two variables in each of the countries of our interest.

3. The Empirical Methodology

3.1 Data Description

The present paper aims at investigating the relation between financial development and international trade in seven East Asian countries (China, P.R; Indonesia, Korea, Malaysia, Philippines, Singapore and Thailand) (Note 4). We therefore need some useful measures for these two variables. As argued by Do and Levchenko(2007), the preferred indicator of financial development is domestic credit by banks and other financial institutions to the private sector as a share of GDP ("Domcrep ") (Note 5). This will be used as our main indicator of financial development. Although it measures only part of the mobilized savings, it measures the part that is channelled to private firms. Although it is not a direct measure of efficiency, it captures part of it, since it excludes credit to the private sector by the central bank, assuming that the later is less efficient than private intermediaries in allocating resources (Beck, 2002). We also use, for completeness, two alternative measures of financial development. The first, "Domcrebs" is the ratio of domestic credit by the banking sector to GDP. The second alternative measure of financial development is liquid liability to GDP ("LILIA"). In his study, Beck (2002) states that the production of manufactured goods exhibits higher scale economies than the production of agricultural goods or the provision of services. Those goods are therefore financially intensive. Moreover, he argued that countries with well developed financial sectors experience large export shares and balance shares in manufactured goods. We therefore use three main indicators of international trade in our study. We use manufactured exports relative to total merchandise exports (MANUEXP), manufactured imports relative to total merchandise imports (MANUIMP) and the difference between both as a measure of the trade balance in manufactured goods (TRADEBAL).

We also include in our model measures reflecting the endowment of factors of each economy through time. More specifically, we introduce a measure of per capita physical capital and a measure of the labour force qualification, variables which are considered to play a key role in the Heckscher-Ohlin model.

Referring to the per capita physical capital measure-PHYCAP- we use Gross Fixed Capital Formation data to derive the annual stock of capital, taking the 1978 as our benchmark year and assuming a depreciation rate of 8%. To compute the capital per worker ratio we divide the stock of capital in period t by the working age population of the same period.

The construction of a labour force qualification creates an additional problem for the analysis. This problem is the lack of statistics for a significant number of countries for the whole span of the sample. The best variable that fulfils this need is the illiteracy rate, denoted ILL. All data were obtained from the World Development Indicators database (2003). The time span goes from 1978 to 2001.

Our data indicate that about one fifth of the population is illiterate in China, Indonesia and Malaysia in our period of study, while Korea appears to possess the best qualified labour force. Of the seven countries in the sample, Indonesia is the one with the less developed financial sector with mean values of 35.91%, 31.29%, and 36.41% representing ratios of Domestic credit to the private sector, credit by the banking sector and liquid liability to GDP respectively. The highest levels of financial development are recorded in Malaysia where the ratio of domestic credit to the private sector as a share of GDP reaches a maximum of 168% and a mean of 112% for the whole period. It is also useful to mention that, for all the countries, all financial development measures are highly correlated among each other. Manufactured exports (MANUEXP) are also highly correlated to Trade balance (TRADEBAL). Descriptive statistics are reported in Table 1.

3.2 Financial Development and International Trade in a VECM Analysis

To investigate the possible link between financial development and international trade in manufactured goods we use Vector autocorrelation models. This enables us to consider all of our variables as endogenous in the spirit of Sims (1980). Besides measures of financial development and those for international trade(Note 6), we include per capita physical capital and the illiteracy rate. A part from ILL, all variables are in Log. As most of the variables we analyse are I(1) or I(0) and cointegration can be established for all specifications, the appropriate model is a vector error-correlation model (VECM). In fact, when it has been determined that all the data series are integrated of order I(1), The Johansen technique is used to test whether cointegrating vectors exist between data representing financial development in one hand, and data representing international trade in the other hand. These can be thought of as long-run relationships between the different variables. This technique uses maximum-likelihood procedures to determine the number of cointegrating vectors among a vector of time series. If it is assumed that the vector of n I(1) time series, y_t , can be written as a VAR,

$$y_t = \Pi_1 y_{t-1} + \Pi_2 y_{t-2} + \dots + \Pi_k y_{t-k} + \epsilon_t \quad (1)$$

Then the vector can be reformulated in a vector error-correlated model (VECM) as follows:

$$\Delta y_t = \mu + \Pi y_{t-k} + \sum_{i=1}^q \Gamma_i \Delta y_{t-i} + u_t \quad (2)$$

Where $q = k - 1$, $\Pi = \sum_{j=1}^k B_j - 1$, B_j is an $(n \times n)$ matrix from the lags of the VAR, and $\Gamma = -\sum_{j=i+1}^k B_j$ for $i=1 \dots q$.

The rank r of the matrix Π in (2) determines the number of cointegrating vectors in the VAR. The Johansen procedure is designated to statistically determine the number of cointegrating vector r in the VAR. The complete testing procedure is reported in Johansen (1988). Johansen provides two different likelihood ratio tests to determine the value of r . These are the trace test, with a test statistic

$$LR = T \sum_{i=r+1}^n \ln(1 - \lambda_i) \quad (3)$$

And the maximum eigenvalue test

$$LR = T \ln(1 - \lambda_{r+1}) \quad (4)$$

Where λ are the eigenvalues from Π

Precisely, we include all endogenous variables in a vector $Y_t = [\text{Financial development, Manufactures, Illiteracy rate, Per capita physical capital}]$ where Financial development stands for one of the three measures of financial development, Manufactures for an indicator of international trade in manufactured goods as stated above, Illiteracy rate for the rate of illiteracy of total adults as a share of people ages between 15 and above. Per capita physical capital is computed as described above.

Stationary property of the series and for every country has been analysed using the Augmented Dickey-Fuller (ADF) and Phillips-Perron unit root tests. Results are reported in Table 2. The unit root tests indicate that, apart from ILL or TRADEBAL which are mainly $I(0)$, most of the variables are integrated of order 1. We can then go on checking cointegration among variables. Potential cointegration is checked by applying the Johansen ‘trace test’. Although we ran VARs in levels to determinate the number of lags, we were unable to choose models which include more than two lags. The reason might be the loss of the degree of freedom due to our limited sample (24 observations). Moreover, we employed the Pantula principle to select the most suitable model. We ran our cointegration tests and VECMs country by country. Variables for international trade were introduced one after another to avoid multicollinearity. Finally, we performed a series of residual tests for all the VECM specifications including autocorrelation, normality and R-squared. Globally, results show that residuals are normally distributed and that there is no error correlation. Results for those tests can be obtained from the authors in request.

4. Results

A full summary of the various VECMs including LDOMCREP (Note 7), our main indicator of financial indicator and all the 3 measures of international trade in manufactures is found in Tables 3A, 3B and 3C. As we focus more in long-run relation, Tables 3A to 3C retrace the main cointegration equations we obtained in the various VECMs.

4.1 Financial Development and International Trade in China

The results of the VECMs for China do not show a consistent relationship between financial development and international trade in manufactured goods. Neither LMANUEXP nor LMANUIMP is related to LDOMCREP, our main measure of financial development. However, the relationship holds with the integration of TRADEBAL in the specification. In the VECM including (ILL, LDOMCREP, LPHYCAP and TRADEBAL), the cointegration test indicates the existence of two vectors of cointegration. When normalized to TRADEBAL, it can be seen that there is a positive relation between LDOMCREP and TRADEBAL with a significant elasticity. This feature is consistent with Beck (2002, 2003) who argues that countries with a high level of financial development experience large export shares and trade balances in manufactured goods. This seems to be the case for China, where a 1% increase in the level of domestic credit to private sector by banks and other financial institutions as a share of GDP produces a 2.7% increase in the trade balance of manufactured goods. In the same cointegration equation, it's noteworthy to indicate that physical capital also has an expected positive effect on Trade balance. The t-Student values of both LDOMCREP and LPHYCAP indicate that the variables are significant at 5% level.

4.2 Financial Development and International Trade in Manufactured Goods in Indonesia

As shown in Tables 3 A, 3B and 3C, the various features of VECMs for Indonesia do not lead to strong positive links between financial development and trade in manufactured goods. On the contrary, both manufactured exports and manufactured imports exert a negative and significant effect on the main indicator of financial development. Moreover, there is no apparent long-run relation between TRADEBAL and LDOMCREP. As we saw In Section 3, Indonesia has the less developed financial sector compared to the other countries in the study. Its capital endowment is also one of the poorest of the sample countries. Moreover, the country's mean of exports of Manufactured goods as a share of merchandise exports is only 30% compared to the same ratio for manufactured imports which is 70%. All those factors may explain the weak or perverse relation between financial development and international trade in manufactured goods for this country.

4.3 Financial Development and International Trade in Manufactured Goods in Korea

From the results in Table 3A, 3B, and 3C, it appears that there is a good support of a link between financial development and international trade in Korea. Our main indicator of financial development (LDMCREP) appears to be significantly and positively related to (LMANUEXP) and (LMANUIIMP) but is negatively linked to (TRADEBAL). And the relation holds from manufactured trade to financial development. For illustration, it can be seen that a 1% increase in manufactured exports produces an increase of more than 25% in the level of financial development represented by LDMCREP. This increase is little bit mitigated for manufactured imports, but still positive (a 0.9% increase). This underlines the huge importance of the Korean structure of international trade to this country's financial development. Because Korean firms are specialized in the production and exportation of manufactured goods, their needs for external finance are high, which leads to more intermediation of financial activities. The above feature is supportive of the hypothesis of Do and Levchenko (2007) and Rajan and Zingales(2003) This is understandable on the extend Korean manufactured exports as a share of total merchandise exports has a mean of 91.58% on the whole period. We will also remark that the Korean performance in international trade helps this country to improve the level of its labour force with an elasticity of more than 4%.

4.4 Financial Development and International Trade in Manufactured Goods in Malaysia

Malaysia in our sample is the country with the highest financial development. Results from VECMs show that this performance is explained partly by the country's specialization in international trade. For instance, a 1% increase in manufactured exports leads to a 2% increase in the level of domestic credit to the private sector, our main indicator of financial development, while the same increase in trade balance of manufactured goods produces a 5% innovation effect in the same measure. All those relationships run from international trade to financial development, thus supporting the idea that a country's advantage in international trade has a positive impact on its level of financial development.

4.5 Financial Development and International Trade in Manufactured Goods in Philippines

Results of VECMs show that financial development and international trade are linked in Philippines. All the three indicators of international trade appear to strengthen the domestic credit to private sector by banks and other financial institutions. For an illustration, a 1% increase in LMANUEXP produces a 0.90% shift in LDMCREP. The other elasticities are respectively 1.42% and 1.70% for LMANUIIMP and TRADEBAL. It is also noteworthy to remark that while manufactured exports and trade balance in manufactures worsen the labour force quality, manufactured imports and physical capital appear to improve it.

4.6 Financial Development and International Trade in Manufactured Goods in Singapore

In some extend there is a link between financial development and international trade in Singapore. Our main indicator of financial development (DOMCREP) is positively and significantly influenced by the level of manufactured exports (LMANUEXP). A part from this, results also show that manufactured imports and domestic credit to private sector both contribute to diminish the level of illiteracy rate. In total, the 67% share of manufactured goods exports on the total of merchandise exports of Singapore benefits substantially to the financial sector through the improvement of the domestic credit to the private sector.

4.7 Financial Development and International Trade in Manufactured Goods in Thailand

As it's the case in the other countries, the VECMs specifications show the existence of a positive and significant relation between financial development and international trade in Thailand. Both LMANUEXP and TRADEBAL appear to have a good influence on LDMCREP. Therefore, we can assert that the Thailand's quite good level of financial development is in part enhanced by the relative comparative advantage this country has on exporting manufactured goods. Not only the financial sector, but also the skills of the labor force are improved by international trade. As can be seen in the VECM, the elasticity of LMANUEXP to ILL is quite high and negative, to mark the reduction of the illiteracy rate by manufactured exports. We therefore conclude that the above results corroborate the

hypothesis of Do and Levchenko (2007) and Rajan and Zingales(2003) who argue that comparative advantage in international trade leads to a huge demand of external finance thus, to financial development.

In summary, as shown in our VECMs methodology, there is a positive link between financial development and international trade in most of East Asian countries we use in our sample. The only atypical feature was registered in Indonesia where international trade exerts a perverse effect on financial development. As we argued, this can be explained by the lack of development of the financial sector in one hand, and the weakness of the international trade in this country in the other hand. The situation in China is more critical. Although the country appears to have a good level of financial intermediation, there is actually no apparent relationship between this good level of financial development and China's exports in manufactured goods. As for Korea, Malaysia, the Philippines, Singapore and Thailand, our VECMs indicate that international trade in manufactured goods is one of the factors which enhance financial development in those countries. Therefore the hypothesis that a country's comparative advantage in international trade influences positively this country's financial sector. An idea developed by Rajan and Zingales(2003) and Do and Levchenko (2007) to name a few. Moreover, international trade also helps to improve the skills of the labor force by diminishing the rate of illiteracy in these countries.

5. Robustness Tests

The aim of our paper is to investigate on a possible link between financial development and international trade in selected Asian countries. In the previous section, we performed this task using our main indicator of financial development LDOMCREP. For more accuracy of the results obtained, we ran other VECMs with the two alternative indicators of financial development: LDOMCREBS and LLILIA. A summary of the various results of the VECMs are available on request from the authors. However, we summarize below our main results.

When we include LDOMCREBS and LLILIA in our VECMs, the results show that both indicators are negatively related to international trade in China. Concretely, it appears that international trade in manufactured goods is harmful to the development of the financial sector. LMANUEXP, LMANUIMP and TRADEBAL all have negative and significant coefficients in long run equations normalized to LDOMCREBS and LLILIA. This is also the same tendency in Indonesia. In this country, the domestic credit by the banking sector (LDOMECEBS) has a negative and significant effect on the imports of manufactured goods (LMANUIMP). At the other side, liquid liability (LLILIA) is perverse to all measures of international trade. This is not surprising, for the financial sector in Indonesia is still less developed compared to the other selected Asian countries. In the case of Korea, the VECMs including LDOMCREBS and LLILIA confirm the results obtained by the one including LDOMCREP. Although the trade balance is negatively related to liquid liability, the VECM show that LMANUIMP has a positive effect on this variable. Manufactured exports (LMANUEXP) also enhance the domestic credit offered by the banking sector. The robustness tests also confirm the beneficial effects exports and trade balance in manufactured goods have on the qualification of the labor force. The relationships between LDOMCREBS and LMANUEXP, and LDOMCREBS and TRADEBAL are all insignificant in Malaysia. However, LMANUEXP and TRADEBAL all have positive and significant coefficients in long-run relations with LLILIA. In Philippines, our results show that manufactured exports (LMANUEXP) exert a positive impact on LDOMCREBS, while LDOMCREBS on it part affects positively LMANUIMP. This supposes a two-side relation between financial development and international trade in Philippine, as far as domestic credit provided by the banking sector is concerned. All the VECM with liquid liability indicate that this variable is strengthened by all the indicators of international trade. In Singapore, if the relation between LLILIA and indicators of international trade is insignificant, the VECMs including LDOMCREBS confirm the positive impact international trade has on the level of financial development. Finally, the introduction of our alternative measures of financial development does not change substantially our results in Thailand. It can be seen that LLILIA affects significantly and positively LMANUEXP and TRADEBAL, while regressions with LDOMCREBS does not lead to better conclusions.

6. Conclusion

The aim of this paper was to investigate for a possible link between financial development and international trade in some selected Asian countries. In this process, we were guided by the ongoing literature relating financial development and international trade. In this debate, while some authors argue that financial development boosts international trade; many others affirm that the relation holds in the other sense. To reconcile the two points of view, we applied a vector-error correlation methodology. This methodology enabled us to treat both financial development indicators and international trade measures as endogenous. By so doing we were able to obtain not only long-run relations but also the sense of the direction of the relation. Using domestic credit to private sector by banks and other financial institutions (LDOMCREP), our results of the VECMs support the idea that international trade triggers financial development in most of the countries in the sample. Therefore, our conclusion corroborates the hypothesis for example of Do and Levchenko(2007) or Rajan and Zingales(2003) for who, comparative advantage in international trade of a country affects the financial needs of entrepreneurs in this country and undoubtedly leads to the development of its financial sector. As it has been established that financial development reduces poverty, one can then argue that

East Asian countries, because of their relative comparative advantage in international trade which boosts their respective financial systems; are better skilled to alleviate poverty. Nonetheless, China is the only country where the relation goes in the inverted direction, thus in line with Beck(2002) who states that countries with well developed financial sectors experience large export shares and trade balances in manufactured goods.

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Notes

Note 1. A good exposition of the Heckscher-Ohlin model reference can be found at Gandolfo (1998).

Note 2. We thank an anonymous referee for this suggestion.

Note 3. In fact, Daly and Akhter (2009) base their research in the well-known “conduit effect” or complementary hypothesis of McKinnon. But they use both the saving and credit channels of financial intermediation to derive their conclusion. But they also find that financial instability is detrimental to economic growth and therefore to poverty alleviation.

Note 4. All along the paper, China and Korea will be referred to as Mainland China and South Korea respectively.

Note 5. The same indicator is suggested by Levine (2000) and used by Beck (2002).

Note 6. Both measures of financial development and of international trade are included in logs, so that the results can be interpreted as elasticities. The trade balance is calculated as the difference of the logs of manufactured exports and imports.

Note 7. For all but Illiteracy rate (ILL) and Trade Balance (TRADEBAL), the prefix “L” indicates that the variable is in Log value. All the variables, except ILL were included in Log.

Table 1. Countries' correlation Matrix

China	mean	median	maximum	minimu	std.Dev
ILL	23.29	22.16	35.85	14.22	6.55
Domcep	85.4	85.56	140.59	38.43	27.76
Domcrebs	83.16	83.56	127.17	50.5	23.7
Lilia	78.53	73.26	142.64	24.54	36.78
Manuexp	68.36	73.64	88.6	26.43	19.05
Manuimp	73.65	78.33	84	50.84	10.11
Phycap	215.6	138.6	539.96	82.42	144.41

Correlation Matrix of China

	ILL	LDMCREBS	LDMCREP	LLILIA	LMANUEXP	LMANUIMP	LPHYCAP	TRADEBAL
ILL	1	-0.972	-0.973	-0.995	-0.730	-0.675	-0.922	-0.677
LDMCREBS	-0.97	1	0.999	0.978	0.695	0.639	0.907	0.647
LDMCREP	-0.97	0.999	1	0.980	0.684	0.630	0.903	0.636
LLILIA	-0.995	0.978	0.980	1	0.702	0.658	0.917	0.644
LMANUEXP	-0.730	0.69	0.684	0.702	1	0.889	0.649	0.950
LMANUIMP	-0.675	0.639	0.630	0.658	0.889	1	0.499	0.704
LPHYCAP	-0.922	0.907	0.903	0.917	0.649	0.499	1	0.671
TRADEBAL	-0.677	0.647	0.636	0.644	0.950	0.704	0.671	1

Indonesia	Mean	Median	Maximum	Minimum	Std.Dev
ILL	21.76	20.97	33.4	12.66	6.43
Domcrep	35.91	39.6	66.05	9.85	19.94
Domcrebs	31.29	22.42	60.84	8.83	16.89
Lilia	36.41	36.4	59.86	15.15	15.53
Manuexp	30.63	33.69	57.12	1.77	2.69
Manuimp	70	71.65	76.86	57.84	5.67
Phycap	365.13	317.55	687.45	203	131.12

Correlation Matrix of Indonesia

ILL	1	-0.972	-0.710	-0.982	-0.92	0.048	-0.288	-0.944
LDMCREBS	-0.972	1	0.799	0.98	0.936	0.085	0.379	0.945
LDMCREP	-0.710	0.799	1	0.797	0.819	0.591	0.593	0.782
LLILIA	-0.982	0.984	0.797	1	0.935	0.071	0.348	0.944
LMANUEXP	-0.925	0.936	0.819	0.935	1	0.239	0.305	0.996
LMANUIMP	0.048	0.085	0.591	0.071	0.239	1	0.401	0.158
LPHYCAP	-0.288	0.379	0.593	0.348	0.305	0.401	1	0.276
TRADEBAL	-0.944	0.945	0.782	0.944	0.996	0.157	0.276	1

Korea R	Mean	Median	Maximum	Minimum	Std.Dev
ILL	4.56	4.25	8.12	2.13	1.8
Domcrep	68.81	64.7	110.43	45.54	16.1
Domcrebs	65.95	63.52	108.03	41.27	16.66
Lilia	55.35	52.17	91.36	33.03	19.38
Manuexp	91.58	91.39	93.52	88.23	1.45
Manuimp	59.74	62.92	67.93	43.09	7.28
Phyca	3590.44	3477.91	7867.62	1114.03	2236.23

Correlation Matrix for Korea

	ILL	LDMCREBS	LDMCREP	LLILIA	LMANUEXP	LMANUIMP	LPHYCAP	TRADEBAL
ILL	1	-0.834	-0.900	-0.958	-0.595	-0.701	-0.894	0.677
LDMCREBS	-0.834	1	0.988	0.857	0.187	0.325	0.550	-0.325
LDMCREP	-0.900	0.988	1	0.914	0.285	0.432	0.663	-0.428
LLILIA	-0.958	0.857	0.914	1	0.398	0.620	0.866	-0.615
LMANUEXP	-0.595	0.187	0.285	0.398	1.000	0.62	0.653	-0.540
LMANUIMP	-0.701	0.325	0.432	0.620	0.622	1	0.769	-0.994
LPHYCAP	-0.894	0.550	0.663	0.866	0.653	0.769	1	-0.742
TRADEBAL	0.677	-0.325	-0.428	-0.615	0.540	-0.994	-0.742	1

Malaysia	Mean	Median	Maximum	Minimum	Std.Dev
ILL	20.47	19.75	31.27	12.12	5.86
Domcrep	112.46	113.55	168.66	57.75	35.21
Domcrebs	95.4	88.08	158.5	38.48	39.02
Lilia	99.74	106.8	132.67	59.03	24.63
Manuexp	50.54	51.22	80.43	17.47	24.27
Manuimp	77.77	80.79	86.18	64.02	7.71
Phycap	2106.89	1706.02	4679.8	801.99	1143.11

Correlation Matrix for Malaysia

	ILL	LDMCREBS	LDMCREP	LLILIA	LMANUEXP	LMANUIMP	LPHYCAP	TRADEBAL
ILL	1	-0.788	-0.929	-0.622	-0.981	-0.948	-0.688	-0.984
LDMCREBS	-0.788	1	0.942	0.926	0.725	0.669	0.447	0.734
LDMCREP	-0.929	0.942	1	0.839	0.888	0.845	0.631	0.893
LLILIA	-0.622	0.926	0.839	1	0.558	0.502	0.269	0.568
LMANUEXP	-0.981	0.725	0.888	0.558	1	0.982	0.709	0.999
LMANUIMP	-0.948	0.669	0.845	0.502	0.982	1	0.708	0.973
LPHYCAP	-0.688	0.447	0.631	0.269	0.709	0.708	1	0.706
TRADEBAL	-0.984	0.734	0.893	0.568	0.999	0.973	0.706	1

Philippine	Mean	Median	Maximum	Minimum	Std.Dev
ILL	8.61	8.45	13.3	4.83	2.56
Domcrep	50.93	52.11	84.47	23.04	18.94
Domcrebs	36.98	39.46	62.22	17.42	13.07
Lilia	43.08	37.34	68.21	28.82	14.8
Manuexp	47.1	36.99	92.44	20.66	27.03
Manuimp	57.63	54.27	80.17	37.06	13.86
Phycap	428.3	419.71	672.2	225.34	120.71

Correlation Matrix for Philippine

ILL	1	-0.218	-0.143	-0.901	-0.930	-0.765682	-0.294	-0.935
LDMCREBS	-0.218	1	0.955	0.565	0.289	0.400868	0.658	0.179
LDMCREP	-0.143	0.955	1	0.520	0.254	0.430585	0.769	0.104
LLILIA	-0.901	0.565	0.520	1	0.905	0.879	0.544	0.817
LMANUEXP	-0.930	0.289	0.254	0.905	1	0.898	0.305	0.953
LMANUIMP	-0.765	0.400	0.430	0.879	0.898	1	0.488	0.724
LPHYCAP	-0.294	0.658	0.769	0.544	0.305	0.488	1	0.143
TRADEBAL	-0.935	0.179	0.104	0.817	0.953	0.724	0.143	1

Singapore	Mean	Median	Maximum	Minimum	Std.Dev
ILL	12.27	11.48	18.91	7.45	3.56
Domcrep	80.09	80.57	102.01	38.99	16.48
Domcrebs	101.19	99.4	128.36	70.23	13.73
Lilia	109.1	115.38	126.48	78.59	14.99
Manuexp	67.77	71.69	86.28	44.74	15.84
Manuimp	69.89	73.25	84	52.25	12.12
Phycap	8658.44	6722.7	17707.7	2699.98	4617.76

Correlation Matrix for Singapore

	ILL	LDMCREBS	LDMCREP	LLILIA	LMANUEXP	LMANUIMP	LPHYCAP	TRADEBAL
ILL	1	-0.592	-0.811	-0.843	-0.980	-0.954	-0.909	-0.954
LDMCREBS	-0.592	1	0.887	0.649	0.487	0.381	0.526	0.699
LDMCREP	-0.811	0.887	1	0.705	0.710	0.637	0.787	0.821
LLILIA	-0.843	0.649	0.705	1	0.849	0.814	0.657	0.856
LMANUEXP	-0.980	0.487	0.710	0.849	1	0.989	0.876	0.935
LMANUIMP	-0.954	0.381	0.637	0.814	0.989	1	0.852	0.872
LPHYCAP	-0.909	0.526	0.787	0.657	0.876	0.852	1	0.856
TRADEBAL	-0.954	0.699	0.821	0.856	0.935	0.872	0.856	1

	Thailand	Mean	Median	Maximum	Minimum	Std.Dev
ILL	8.27	7.83	13.73	4.34	2.89	
Domcrep	98.5	87.27	164.09	56.5	33.28	
Domcrebs	87.08	77.65	165.71	40.8	40.42	
Lilia	75.61	73.93	118.2	40.54	25.35	
Manuexp	53.43	59.73	75.56	21.44	20.25	
Manuimp	69.47	74.01	80.7	50.82	9.16	
Phyca	785.05	630.25	1969.01	264.06	512.38	

Correlation Matrix for Thailand

	ILL	LDMCREBS	LDMCREP	LLILIA	LMANUEXP	LMANUIMP	LPHYCAP	TRADEBAL
1	-0.936	-0.932		-0.986	-0.973	-0.892	-0.763	-0.972
-0.936	1	0.983		0.929	0.898	0.855	0.753	0.881
-0.932	0.983	1		0.909	0.916	0.898	0.840	0.888
LLILIA	-0.986	0.929	0.909	1	0.950	0.877	0.672	0.946
LMANUEXP	-0.973	0.898	0.916	0.950	1	0.940	0.826	0.987
LMANUIMP	-0.892	0.855	0.898	0.877	0.940	1	0.817	0.875
LPHYCAP	-0.763	0.753	0.840	0.672	0.826	0.817	1	0.797
TRADEBAL	-0.972	0.881	0.888	0.946	0.987	0.875	0.797	1

Table 2. Augmented Dickey-Fuller and Phillips-Perron Unit root Test Results

China (Mainland)

Variables	ADF statistics	Order	PP Statistic	Order
LMANUEXP	-3.356588*	0	-3.561533**	1
LMANUIMP			-6.790343**	1
TRADEBAL	-3.939944**	0	-2.715682**	1
LDMCREP	-4.613173**	1	-5.263471**	1
LDMCREBS	-3.889167**	0	-3.889167**	0
LPHYCAP	-3.402003**	1	-3.402003**	1
ILL	-2.206727**	0	-18.03095**	0
LLILIA	-4.700325**	1	-7.552679**	0

Indonesia

Variables	ADF Statistic	Order	PP Statistic	order
LMANUEXP	-4.382031**	1	-4.408752**	1
LMANUIMP	-5.210673**	1	-4.545600	1
TRADEBAL	-4.855025**	0	-4.700177**	0
LDMCREP	-3.882504**	1	-3.844862**	1
LDMCREBS	-3.108813**	1	-3.090556**	1
LLILIA	-2.111620**	1	-2.067003**	1
LPHYCAP	-4.554741**	1	-4.607571	1
ILL	-19.990**	0	-17.65572**	0

Korea (South Korea)

Variables	ADF Statistic	Order	PP Statistic	order
LMANUEXP	-5.106850**	1	-6.468425**	1
LMANUIMP	-3.302894**	1	-3.251363	1
TRADEBAL	-3.346582**	1	-3.286507**	1
LDMCREP	-3.701613**	1	-3.701613**	1
LDMCREBS	-2.495403**	1	-2.355455**	1
LLILIA	-5.194875**	1	-5.292971**	1
LPHYCAP	-3.515989**	1	-3.550162**	1
ILL	-37.95349**	0	-33.29437**	0

Malaysia

Variables	ADF Statistic	Order	PP Statistic	order
LMANUEXP	-5.395062**	1	-5.395062**	1
LMANUIMP	-5.281530**	1	-5.281530**	1
TRADEBAL	-3.770684**	0	-3.580107**	0
LDMCREP	-4.505961**	1	-4.518564**	1
LDMCREBS	-4.012333**	1	-4.013110**	1
LLILIA	-5.016596**	1	-5.015703**	1
LPHYCAP	-3.488932**	1	-3.414975**	1
ILL	-5.601334**	1	-51.81991**	1

Philippines

Variables	ADF Statistic	Order	PP Statistic	order
LMANUEXP	-3.662427**	0	-3.654466**	0
LMANUIMP	-5.40001**	1	-5.398476**	1
TRADEBAL	-2.270509**	0	-2.544150**	0
LDMCREP	-2.688824**	1	-2.758250**	1
LDMCREBS	-3.118523**	1	-3.118523**	1
LLILIA	-2.104987**	1	-4.475858**	1
LPHYCAP	-3.095638**	1	-3.095638**	1
ILL	-1.685566*	0	-8.024671**	0

Singapore

Variables	ADF Statistic	Order	PP Statistic	order
LMANUEXP	-1.962871**	1	-1.962871**	1
LMANUIIMP	-3.181775**	1	-3.186033**	1
TRADEBAL	-3.566754**	0	-3.751688**	0
LDMCREP	-2.900463	1	-2.776474**	1
LDMCREBS	-3.244999**	0	-3.24499**	0
LLILIA	-6.153131**	1	-6.423812**	1
LPHYCAP	-1.912028**	1	-1.926962	1
ILL	-2.706148**	0	-21.98560**	0

Thailand

Variables	ADF Statistic	Order	PP Statistic	order
LMANUEXP	-2.967026*	0	-2.514439*	0
LMANUIIMP	-5.324382**	1	-4.881010**	1
TRADEBAL	-4.799214**	0	-5.540794**	0
LDMCREP	-1.610707*	1	-1.697117*	1
LDMCREBS	-1.695363*	1	-1.811489*	1
LLILIA	-3.256508**	1	-3.131529**	1
LPHYCAP				
ILL	-58.31908**	0	-58.31908**	0

LMNUEXP= Log of the ratio of manufactured exports relative to total merchandise exports

LMANUIIMP= Log of the ratio of manufactured imports relative to total merchandise imports

TRADEBAL= Trade balance in manufactured goods

LDMCREP= Log of the domestic credit provided by the banking sector and other financial institutions to the private sector on percentage of GDP

LDMCREBS= Log of the domestic credit by the banking sector relative to GDP

LLILIA= Log of the liquid liability relative to GDP

LPHYCAP= Log of Per capita physical capital. For its computation, see section 3..

ILL= illiteracy rate adult

*and** Denote significance at the 10% and 5% level respectively and the rejection of the null hypothesis of non stationarity. Critical values are obtained from MacKinnon 1996.

Table 3A. Summaries of VECM tests (LDMCREP, LMANUEXP, ILL, LPHYCAP)

China						
normalized on	LPHYCAP		LMANUEXP		Constant	
ILL	-29.1011	(-3.8154)			271.5974	(4.999)
LDMCREP	4.494188	(4.02104)			-46.9832	(-5.901)
LMANUEXP	-0.76475	(-6.8987)			1.11147	(1.4076)
INDONESIA						
ILL	23.192	(2.2014)	23.933	(5.7368)		
LDMCREP	-4.4206	(-2.5533)	-4.1373	(-6.035)		
MALAYSIA						
ILL	0.303821	(0.6131)	3.0816	(2.8311)	-18.849	(-2.307)
LDMCREP	-1.0459	(-2.8694)	2.23069	(2.7861)	-10.7237	(-1.784)
PHILLIPINES						
ILL	-3.6418	(-3.5632)	2.478242	(3.5215)	9.563449	(2.1125)
LDMCREP	-3.768	(-11.233)	0.906368	(3.9244)	13.52595	(9.1041)
SINGAPORE						
ILL	3.785627	(7.4935)	4.917078	(6.8365)	-66.6511	(-20.13)
LDMCREP	-1.40955	(-5.5465)	1.992727	(5.5076)	0.356474	(0.2140)
THAILAND						
ILL	3.229918	(1.84945)	-21.9883	(-5.934)	94.5123	(4.2095)
LDMCREP	-0.17418	(-1.2927)	0.943016	(3.299)	-9.4263	(-5.441)
KOREA						
ILL	0.573586	(2.61333)	-4.2639	(-0.384)	13.78717	(0.28042)
LDMCREP	-0.34545	(-4.6511)	25.38157	(6.75647)	-116.128	(-6.9798)

The table displays the various long-run equations between the endogenous variables in each country. Equations are normalized in one variable. Short-run equations are available on request.

China refers to as Mainland China while Korea refers to as South Korea

LDMCREP= Log of domestic credit by banks and other financial institutions to the private sector relative to GDP

LMANUEXP= Log of manufactured goods exports relative to total merchandise exports

ILL= illiteracy rate

LPHYCAP= Per capita physical capital

T-student statistics are in brackets.

Table 3B. VECM (LDMCREP, LMANUIMP, LPHYCAP, ILL)

China						
normalized on	LPHYCAP/ LDMCREP		LMANUIMP		constant	
ILL	6.773417	(4.85150)			-54.3585	(-5.7152)
LDMCREP	-0.62712	(-3.5082)			-0.42586	(-0.3497)
LMANUIMP	0.058336	(1.69841)			-5.14122	(-21.972)
INDONESIA						
ILL	-4.4202	(-2.3257)	-36.993	(-4.3790)		
LDMCREP	-0.3423	(-1.4872)	-5.62648	(-5.4998)		
MALAYSIA						
ILL	0.9881	(0.22894)	2.106816	(4.46691)	-12.0409	(-0.5735)
PHILIPINES						
ILL	-0.15679	(-1.2273)	-1.30937	(-8.0731)	-	-
LDMCREP	-4.01224	(-10.636)	1.42136	(2.96803)	-	-
SINGAPORE						
ILL	-11.012**	(-3.8010)	-19.9337	(-4.9448)	-	-
LPHYCAP	10.7060**	(5.41088)	17.8779	(6.49408)	-	-
THAILAND						
ILL	0.360216**	(0.68555)	2.763785	(2.6049)	-	-
LPHYCAP	-2.93872**	(-6.0684)	3.250615	(3.32430)	-	-
KOREA						
ILL	-0.02402	(-0.0873)	-0.30189	(-0.2921)	-	-
LDMCREP	0.25297	(2.94109)	0.966882	(2.99034)	-	-

LDMCREP= Log of domestic credit by banks and other financial institutions to the private sector relative to GDP

LMANUIMP= Log of manufactured goods imports relative to total merchandise imports

ILL= illiteracy rate

LPHYCAP= Per capita physical capital

** Denote coefficients of the variable LDMCREP

Table 3C. VECM (LDMCREP, TRADEBAL, LPHYCAP, ILL)

CHINA				
normalized on	LDMCREP		PHYCAP	TRADEBAL
ILL	3.064600	(3.41547)	0.192753	(0.58151)
TRADEBAL	2.724291	(20.2385)	1.059727	(21.3106)
INDONESIA				
ILL			-2.034	(-2.51991)
LDMCREP			-0.085613	(-0.30054)
TRADEBAL			0.952387	2.39047)
MALAYSIA				
ILL			-0.132001	(-0.29982)
LDMCREP			-1.406071	(-2.91776)
PHILIPINES				
ILL			--1.463628	(-1.83479)
LDMCREP			-3.283504	(-11.4864)
SINGAPORE				
TRADEBAL			-0.085545	(-4.69275)
ILL			4.974038	(5.13353)
LDMCREP			-0.048990	(-1.51391)
THAILAND				
ILL			0.283647	(1.06570)
LDMCREP			-1.114398	(-3.80853)
KOREA				
ILL	0.882680	(1.18012)	0.434285	(2.32134)
TRADEBAL	-0.709389	(-2.81585)	-0.105402	(-1.67269)

LDMCREP= Log of domestic credit by banks and other financial institutions to the private sector relative to GDP

TRADEBAL= Trade balance in manufactured goods

ILL= illiteracy rate

LPHYCAP= Per capita physical capital



Supply Chain Management and Challenges Facing the Food Industry Sector in Tanzania

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Abstract

The complexities of food supply chain impose enormous challenges to the processors. As compared to multinational food companies operating in Tanzania, local firms have been performing inefficiently or going out of the business because they could hardly withstand the competition. SCM in the food industry sector was studied in a qualitative survey covered 23 food processing firms in Tanzania, with the purposes of identifying the existing supply chain operation, knowledge of SCM concept and challenges facing the sector. The findings of this study suggest that a lot of efforts need to be addressed to ensure that food processors benefit from SCM concept. The understanding of SCM concept among the processors seems to be low, thus, hindering them from tapping up the advantages that SCM concept offer. The sector still faces a number of factors which impede the firms to grow fast and compete in the global market. Such factors include technical know-how, research and development, capital, managerial and physical infrastructures.

Keywords: Supply chain management, Inventory management, Customer perceived value, Food industry

1. Introduction

Food industry is one of the largest branches of industries in Tanzania which is made up of micro, small, medium and large processors. Micro and small food processors operate in an informal sector and use labour intensive and poor technologies, while medium and large scale industries use improved and modern technologies with large capacity output. Small and medium industries are the majority of local manufacturers of consumer goods. The largest production sectors of food industry are brewing, milling, baking, confectionery, animal and vegetable oils, sugar, dairy products, fruits and vegetables, soft drinks, fish and meat processing, ethyl alcohol distillation, spirit blending, wines, bottling of natural spring and mineral waters, among others.

The current economic environment in Tanzania has provided opportunities for the private sector to participate actively in investment activities as opposed to the previous socialist policies which put investment activities under state control. The new economic environment has created significant incentives for local and multinational investors to invest in different sectors of the economy. From the early 1990s the government launched a deliberate programme to restructure and privatise public owned enterprises. Government withdrawal of state control brought a big challenge to the industry sector. Since then the country has witnessed a number of firms which were run by local investors performing inefficiently or going out of the business because they could hardly withstand competition from local multinational invested companies and importers.

As the country experiences more pressure from globalization, the food industry sector is also subjected to the increased competition in the domestic market. The processors have to meet those challenges by responding very fast to avoid delays which can take them out of the business. The main objective of this paper is to ascertain the existing supply chain, knowledge of supply chain management (SCM) concept and the challenges facing the food processing industry sector in Tanzania. The understanding is intended to provide background information which may help to design appropriate supply chain strategies that can be adopted for circumstances suitable for the current global challenges prevailing in the country.

2. Literature Review

The food industry sector is vast and diversified, categorized by different segments such as fresh food industry, organic food industry, processed food industry and livestock food industry. Each segment need different supply chain strategies such as procurement and sourcing, inventory management, warehouse management, packaging and labeling system, and distribution management, thus, the uniqueness characteristics of food supply chain (Georgiadis et al. 2005). Despite the

wide acceptance of SCM as a tool which provides opportunity for the firm to have competitive advantage, the concept of SCM in many developing countries including Tanzania reported by different researchers and academicians have been mainly focusing in agricultural products and related problems such as lack of appropriate information, post-harvest losses, lack of electricity among others. Eskola (2005) addressed the marketing of agricultural produces and SCM in Tanzania, analysis of the constraints for the development of banana industry in Indonesia and Australia is reported by Singgih and Wood (2004), trust and power dependence into an analysis of agribusiness supply chain is reported in Batt (2004). Akyoo (2005) described a supply chain structure of spices in Zanzibar. Most of these papers present the complexity supply chain of raw agricultural products. They addressed issues on product perishability, marketing structure, transportation, product quality, post-harvest losses among others. However, investigation into cognitive and affects of SCM concept in food processing industries have been surprisingly understudied making relevant literature in the sector to be limited. Cox and Chicksand, (2005) discussed the strength and weakness of lean management thinking in the food and farming supply chains. Based on a case study of red meat supply they argued that the adoption of lean practices internally may be appropriate for all participants in the industry, but the inter-organizational aspects of lean may not be easy to apply in practices, nor appropriate, for many participants. For multiple retailers adoption of lean principles may lead to increasing profitability. On the other hand for the majority of participants, adopting lean principles may result in a high level of dependency on buyers and to low or declining levels of profitability.

Perishability of agricultural produces creates uncertainties within the supply chain in respect to product quality, safety and reliability. Since supply chain partners are aware of deterioration problems, to avoid losses, the partners tend to stock less quantities. To ensure product quality of agricultural raw materials for a long time requires efficient designed storage facilities (Georgiadis et al. 2005) that many firms can not afford to buy and install. Similarly, the challenge happens on processed food products because of limited shelf lives. The firm may opt to produce and stock less quantities to avoid losses resulting from expired products, but it is quite clear that if the demand turn to be high other customers willing to buy will turn away without the product because of stock out and vice versa.

SCM encompasses a set of interdependent companies that work closely together to manage the flow of goods and services along with the value-added chain of agricultural and food products, in order to realize superior customer value at the lowest possible costs (Wood, 2004) as well as the associated information flow (Byrne 2006). The supply chain includes not only the processor and the suppliers but also the transporters, warehouses, retailers, and even the customers themselves (Chopra and Meindl, 2008). Exploring seriously the potential of SCM concept, a firm may realize a significant revenue growth (Gunasekaran, et al. 2008). Simchi-Levi et al. (2003) have shown that using more supply chain strategies, the firm can save about 10 percent of its annual operation. Application of SCM strategies have been widely pronounced in other manufacturing and service providing sectors such as in auto-mobiles, electronics, books, hotels, telephone companies among others. For details and more literature on SCM few to mention, the reader is referred to Chopra and Meindl (2008), Gunasekaran et al. (2008), Bellantuono et al. (2007), Fawcett et al. (2007), Bowersox (2006), Reina and Trck (2004), Wheatley et al. (2004), Woods (2004) and Simchi-Levi et al. (2003).

Wood (2004) identified several reasons for rising interest in SCM in agribusiness industry. The reasons at suppliers' level include:

- Greater differentiation of food products.
- The competition for consumer expenditure.
- Changing in the operating environment.
- Improvement of product quality.
- Ability to ship products in cost-effective ways provides consumers with flexibility from which to choose.

While at consumer level the following reasons have been put forward:

- Consumers' sensitivity to quality, safety, health and nutritional factors of food products.
- Interest in place of origin and means of production, including non-food values such as environmental sustainability and animal welfare.

These reasons identified, similarly raise interest for the food processing sector to review the operation of their supply chain. Consumers' ability to choose from alternative suppliers exerts greater pressure than ever before over the food production and distribution systems. In turn it becomes clear to food processors that business success depend on responsiveness to consumer demands.

Moreover, Wood (2004) presented the understanding of the concept and implications of SCM in developing countries focused on its application in planning, developing and managing agri-business. In developing countries supply chain are long and fragmented with multiple small holders not only in agricultural products (Wheatley et al. 2004) but also in the food processing sector. It is quite clear that the driving force of developing interest in SCM is its advantage towards competitiveness; a critical factor is how effectively the chain addresses customers' wants and needs. Porter's argument

presented in Wood's (2004) is that, the difficult in developing a strategy, is to do something different that is hard for competitors to copy. He proposed human capabilities and relationships lead to a sustainable advantage, because these approaches are intrinsically hard to copy.

3. Research Methodology

Detailed structured questionnaires were designed to identify the way in which food processors in Tanzania manage their supply chain. For places where internet and emails were not accessible or available, questionnaires were delivered physically and filled out on spot. Before distribution, preliminary trial was conducted to ensure that all questions were comprehensible and no difficulties in answering. Managers and individuals with decision making power within the firm were eligible to respond to the survey questionnaires. The survey research method was chosen because it offers opportunity to study a phenomenon in its own natural settings where complex links and underlying meanings can be explored. It is also appropriate because the knowledge of SCM in the food industry in Tanzania is limited. The method helps to generate in-depth contextual information which may result in a superior level of understanding that allows the researcher to draw a reasonable conclusion. Furthermore, it avoids the bias of asking different questions from different processors by using the same formulation for all of the respondents; and it can be designed in advance to cover the desired areas of interest.

The respondents were required to respond to the questions which were grouped into several sections addressing the research objectives. The questions focused on the processors' knowledge towards SCM concept, inventory management, customer service, marketing, order processing, application of information technology and the challenges facing the food processing sector.

The survey was only designed to cover different food processors i.e. large scale processors, small and medium food processors while excluding other major players in the food supply chain such as primary and secondary raw material suppliers, distributors, wholesalers, retailers and ultimate consumers. The survey intended to capture detailed information from brewers and beverage producers, millers, fruits and vegetable processors, dairy industries and water bottling companies. The data were collected as part of a larger research project focusing on supply chain contracts in the food industry sector. The sample was therefore chosen from different regions in Tanzania to reflect the large area in which food products are produced and distributed.

The survey managed to cover a total of 23 food processors, 3 from brewing industries, 3 dairy industries, 4 millers, 5 fruits and vegetable processors, 4 beverage industries, 3 water treatment and bottling companies, and 1 confectionery processor. The data collected was all qualitative.

4. Results and Discussion

The overall results of the study described in the next sections below suggest that, the current situation in which the food industry sector in Tanzania operates is still far away to realize and tap the advantages that SCM concept offer in the business. The purpose of this study was, however, to identify the existing supply chain operation, knowledge of SCM concept and challenges facing the food industry sector.

4.1 Processors' Knowledge on SCM Concept

The understanding of the concept of SCM differed significantly when compared to respondents from multinational food processors and local invested food processors. Multinational invested companies which are in the category of large scale processors had a clear understanding of the concept. However, most of them referred the term SCM as similar to *operation management*, the current existing system of operation in their business. "*Multinational invested companies referred to are those companies which are also operating in other countries around the global*". The understanding and implementation of some of the SCM concept in large scale firms has led them to have large market share in the local and international market. The multinational food processors have managed to identify and establish some sort of coordination and relationship among the supply chain partners in which information flows from down to upstream. Such information has been useful in production planning and distribution. Moreover, demand uncertainty has been reduced significantly leading to customer satisfaction as well as low or no returns of their products. Buy-sell is the only relationship which exists in local invested food processors. Supply chain literature (Simchi-Levi, et al.2003; Chung-Chi and Cheng-Han, 2008) suggests that in such operations where coordination does not exist, it is inevitable to have inefficient supply and dissatisfied customers. Uncoordinated information from downstream to upstream of the supply chain has created a lot of wastages and losses for most of food processors. This can be justified by the recall of expired products from the market as the result of excessive supply. The distorted information implies that the processors work on unreliable amplified (bullwhip effect) demand data and this has serious cost implication (Lee, 2004; Ouyang and Daganzo, 2008). For example one of the fruits and vegetables processing factory visited had a recall product of about 10 *tones* of tomato sauce; this was a huge loss for the company to recover. Due to the nature of the food industry products, products are subjected to the constraints of limited shelf life (Minegish and Thiel, 2000); it is not easy to recover any materials whenever expiry date is due. Therefore the company has to incur loss on costs such as labor costs,

transportation costs, destruction costs, primary and secondary raw materials etc. Several researchers (Wee and Yang, 2004; Hunt, et al. 2005; Ketikidis, et al. 2008) have shown that such kind of losses resulted from uncoordinated channel can be minimized through close coordination between partners within the supply chain including customers by forming alliances or sharing information and knowledge to create a collaborative competitive and cost effective supply chain.

Huge financial capital accessible by larger multi-national companies has provided them with an opportunity to employ skilled and competitive employees, and at the same time acquiring modern technologies required in the current business environment. As an argument put forward by Porter in Wood (2004), human capabilities and relationships lead to a sustainable advantage because it is an approach that can not be easily copied by competitors. These companies have been able to establish research and development (R&D) departments to develop products or brands which meet consumers' demand and thus increasing their competitiveness in the market. For small and medium food processors, financial capital remain to be one of the obstacles hindering them to come up with substantial supply chain strategies which may help to exert huge pressure in the market's competition.

4.2 Inventory Management

Inventory exists at every stage of the supply chain as raw materials, semi-finished or finished goods. They can also be in process between different locations. Holding of inventories can cost a company about 25% to 40% of their value. Lost sales and customer dissatisfaction can occur as the cause of inventory; therefore efficient inventory management is very important in supply chain operation and it helps the firm to maintain competitive advantage (Stock and Lambert, 2001; Axsäter, 2006). In this area only large scale multi-national companies have set a number of strategies to ensure that costs arising from inventory are minimized. Such strategies include; setting up optimal and minimum of raw and finished products, employment of first in-first out (FIFO) policy, minimum stock reorder for each item and periodic stock evaluation. One of the respondents from the brewing industry reported to incur inventory cost of about 2 to 3 % of their value i.e. from rental, interest foregone, obsolescence/damage/expire, insurance, handling, security and stock valuation.

On the other hand, most of the processors payless attention on inventories available at their downstream partners' (wholesalers and retailers) stores. Processors' productions are based on *produce-to-stock* strategy to avoid dissatisfaction of customers if the demand turns to be high. Ignorance of inventory at wholesalers' and retailers' stores had the following impacts to the processors:

- Piling up of the stocks in the processors' warehouses
- Spoiled products due to obsolescence (food products are short cycle shelf life items). Expired products can not be reprocessed for human consumption
- Increased distribution and recall costs
- Increased inventory cost
- Significant decrease in profit margin resulted from spoiled products

Almost all of the processors responded to this study admitted to receive returns from the market as an expired products or products with quality defects. However, the magnitude of return differed from one processor to another but with the range of 0.05 to 20 percent of the product delivered to the market.

4.3 Pricing Strategy

Pricing is a significant attribute through which a firm executes its competitive strategy and therefore, price is identified as one of the most sensitive factor among the relationship between suppliers and the customers (Li and Liu, 2006). Suppliers have been using discounts as a tool to entice customers to buy (Lau et al. 2008, Schotanus et al. 2009). The processors admitted to use quantity discount (up to the maximum of 5%) at different times of the product's life cycle, and customers enjoy huge discount when the product is near to the expiry date or during the season in which product's demand is low. In addition to discounts, large scale food processors e.g. brewers offer price differentiation for premium brands and also promotion prices when introducing a new product into the market. Interestingly all processors set their suitable wholesale prices while leaving the retailer with the mandate to determine retail price. Nevertheless the processors experience decrease in sales volume if retailers set high retail prices because most of customers may not afford or opt to use alternative product if not to buy the product from other competitors who offer an affordable price, thus the weakness of uncontrolled retail price.

The production technology used may have a significant cost implication on the product. Most of small and medium food processors use batch production system, changeovers in batch wise production make small production runs more expensive per unit than continuous production systems employed in large scale food processing industries. In each case, the processor has to decide how to price the product to reflect economies of scale. Availability of a wide range of products and suppliers from which customers can choose, limit the processors to set the price that optimize his own profit, selling above the market price it means the processor will lose customers to the competitor. Most of the time

customers look for the cheapest supplier when making decision for purchase (Batt, 2004). This is one of the challenges facing small and medium processors because selling price is determined by market forces and they are obliged to sell at available market prices otherwise few or no customers will buy, hence the loss due to obsolescence.

4.4 Customer Service and Customer Perceived Value

Generally, customer service and customer perceived value in Tanzania differ significantly from one factory to another. The relationship which exist between customers and small and medium food processors is *buy-sell* relationship. Few food processing companies have demonstrated abilities in customer satisfaction, some with higher degree of satisfaction than others. This has been achieved by allowing customers to participate in some stages of their business operations. The companies include Bonite bottlers, Coca-Cola Kwanza, Tanzania Breweries, Serengeti Breweries, Azam Industries, Mulzah Oil industries, BIDCO, Dabaga fruits and vegetable processing company, Ivory fruits and vegetable processing company, Azania millers, Power Food Company. Personal observations and experience show that different level of individual income and education has influenced the perception of products from these firms. Other consumers are willing to pay high for a product from a certain factory even if the functional quality of the product does not support the price paid. This situation helps the processor to create the market or consumer segmentation. The use of professional sellers, good customer service and community support for some of these companies has increased their reputation to customers. Satisfied customers are always reluctant to look information from alternative suppliers. Word-of-mouth referral is the most effective form of promotion which has helped some of the manufacturers to increase their market share. It costs nothing and carries a lot of credibility as it is based on personal experience which is easily perceived as the voice of the market (Nasution and Mavondo, 2008).

Companies which use responsive market approach have been performing well in the business as compared to those companies which are using proactive market orientation approach. In responsive approach as described by Berghman, et al. (2006) companies are focusing to satisfy customer needs achieved by listening from customers contrary to proactive approach which aims towards the satisfaction of latent needs.

4.5 Marketing and Distribution Strategies

The majority of food processors in Tanzania operates from Dar-es-Salaam, the commercial city and distributes their products to different geographical areas within the country and neighboring countries. The availability and easy access to infrastructure and services such as electricity, water, secondary raw material, good roads, and large number of consumers have attracted many investors to invest and operate their production activities in Dar-es-salaam. Other regions are mostly dependent on finished products from Dar-es-salaam. From processors, products go through distribution centers (*DC*), wholesalers (*WS*) and retailers (*R*).

Distributors serve several wholesalers which in turn serve several retailers; and finally, retailers deliver the products to ultimate consumers. On the other hand, some processors overlap with wholesalers to deliver the products directly to retail stores and in some cases few small enterprises deliver their products to the consumers as depicted in Figure (1) using trained itinerants.

(Insert Figure 1 here)

It is interesting to see that almost all of the food processors in Tanzania use the same marketing strategies but of different magnitude, depending on the economic strength of the company. Advertisement through public and private media (televisions, radios, news-papers, internet etc) is a single and expensive component of marketing process which is used by large food processors to promote and deliver relevant information of their products to existing and potential customers.

Promotion through trade shows using mobile vans around large and small cities in Tanzania is becoming popular for processors to promote their products as they consider this strategy to be economical in respect to their economic strength. Exhibitions organized in different times of each year have been playing a big role for processors to display existing and newly developed products to customers. Dar es salaam International trade fair organized at the end of June to July 10th of each year is the largest trade exhibition event which has given an opportunity to local and international companies to display, meet and discuss face to face with their potential customers. Other exhibition includes East African Trade Fair, regional exhibitions organized by Small Industries Development Organization (SIDO) etc.

Large and medium scale food processors e.g. Coca-Cola Company and Tanzania breweries Limited have been successful and consecutively running promotion through sponsorship and competition. This strategy has helped these companies to sustain and increase their market shares significantly. Road side posters and brochures are also used to deliver information to customers.

Besides, market research, customer support, community involvement, media planning and public relation as components of marketing process are rarely implemented or used in the food industries in Tanzania.

4.5.1 Market Structure

The market structure in Tanzania is characterized by many food processors producing identical or relatively identical products being sold to large numbers of buyers (wholesalers and retailers). The buyers deliver these products to the consumers who are well informed about the quality and prices of products from different processors. Any investor in food processing business can freely enter or exit the industry subjected to the market forces. Difference in production capacities, processing technologies, and expertise influence the quality of products produced by these industries. Therefore, factories with large capacity and advanced technologies to some extent tend to have power on dictating the market price. Since the government does not impose or control the market price of products, small and medium food processors are forced to sell their products at an available market price. By doing so, the majorities are running their businesses at low marginal profit. Those who do not have any properly defined objectives and visions are going out of the business because they hardly withstand the competition.

4.6 Order Processing

Since most of the processors use *produce-to-stock* and *push-based* supply chain strategies, few orders are received from downstream partners especially for export markets or for specific market segment such as supermarkets and large wholesalers. An order comes in through emails, faxes and telephone, hard copy, and text messages from reputable customers. Customers are guaranteed to receive their orders within two to seven days depending on order quantity placed.

4.6.1 Production Planning and Scheduling

The production planning and scheduling process complexity differ from one processor to another. Some processors produce in batch while others planning and scheduling are based on continuous production process. Additionally, among these processors, some produce only a single product or related products e.g. flour, baked products, liquor, soft drinks etc, while others produce multiple items e.g. confectionery, tomato sauces, jams, juices, etc. However, the aim remain to be the same, that is, to minimize production time, costs, efficiently organized use of resources and maximize efficiency in work place so as to satisfy customer requirements.

Production planning and scheduling for some of the plants visited (e.g. fruits and vegetable, dairy, milling, water treatment and bottling, soft drinks etc), demonstrated a number of production elements, ranging from the every day activities of staff to the ability to realize accurate delivery times for consumers with an effective production operation and its nucleus, though they are hardly meeting these goals. Production department work closely with marketing department to ensure smooth business operation as summarized in Figure 2. The majority of small and medium food processors in the country, production planning and scheduling are not systematic and strategically implemented as they result into over stocking when the demand becomes low or shortages when the demand turns to be high. Any planning problem starts with a specification of customer demand that is to be met by the production planning and scheduling. In most contexts, future demand is at best only partially known, and often is not known at all. Consequently, one relies on forecast for the future demand. To extend that any forecast is inevitably inaccurate, one must decide how to account for or react to demand uncertainty. Forecast is one of the major weaknesses found in these industries. For example, market share of bottled water, local brew and soft drinks increases during hot season of each year starting late August up to late April. Some processors of these products do not respond quickly towards market demand, the main reason of this is because of poor coordination in their supply chain and forecast. Information rarely flow from down to up stream or do not exist at all, processors continue to produce for stocking and distribution without matching with the market demand. The situation is worse in industries with multiple items with independent demand.

(Insert Figure 2 here)

Without collaboration, each partner in the supply chain individually tries to plan the quantity, demand and time of delivery to customers. These results, into a never ending cycle of inventory excesses or out of stocks when the demand exceeds the anticipated forecast (Bowersox, et al. 2006). Soman et al. (2007) observed that producing large quantity of products on pure *produce-to-stock* basis is not a viable strategy because demand is uncertainty and products have limited shelf lives.

4.7 Application of Information Technology

Tanzania is one of the countries in Africa with large number of companies investing in information and communication technologies. Currently, the country has more than four mobile telephone service providers covering large areas of the country and neighboring countries. In addition, almost every district is connected with internet network where customers access different information of their interests. Though not all processors have fully been utilizing these opportunities, some have established reliable mechanisms of information exchange between partners either through mobile communication or internet and related services. Thus, orders, sales data, forecasts, customers' complains and any kind of messages are immediately exchanged across the supply chain at low costs.

4.8 Challenges and Impediments Facing the Food Industry Sector

Tanzania's food industry which has lagged behind for many years in terms of technology and equipment is still facing enormous, diverse and demanding challenges which hinder the sector from growing at a noticeable pace to significantly contribute to the country's economic development. In addition to technology and equipments, other challenges identified by processors include; technical know how, research and development, capital, managerial and physical infrastructure. Foreign investors have grabbed a bigger market share by using their advanced technologies and huge capital resources posing great pressure to small and medium entrepreneurs as they are still not able to generate sufficient value added products. Small scale of production due to low investment capital and irrationally structured firms make them less competitive.

4.8.1 Technology and Technical Know How

Food production at all levels around the world has been growing and evolving at a remarkable rate to meet the basic requirements of an increasing world population. On the other hand the number of people working in farms in recent years has been decreasing most of them shifting to other economic sectors as a result of industrialization and urbanization. To meet the challenge, food scientists and technologists in collaboration with food processing equipment manufacturers have been working closely to developed cost-effective ways of processing, storage and distribution of food to reach the growing population of consumers in sound and safe product. In spite of available advanced technologies around the world, most of food processors (especially small and medium enterprises) in the country still use poor and labor intensive technologies with low production capacities accompanied with low skilled and inexperienced personnel. Lack of enough capital to acquire these technologies remains to be one of the major obstacles that food processors face in their business.

As the supply chain of food products includes wholesalers and retailers, performance of these members have direct impact on the processors. It is always positive to the processor when the business of wholesalers and retailers grow. Although most of wholesaler and retailers have been doing business for many years, the level of knowledge in basic business skills are low and their business rarely grows. Some businessmen are unable to distinguish between revenue and profit and sometimes end up spending their own working capital while thinking that they are running a profitable business. However, the government institutions and non government organizations (NGOs) deliberately have started to offer educational programs to develop their skills.

Apart from the lack of processing equipments, food processors also have been facing difficulties in securing primary and secondary raw materials. Referring to secondary raw material means availability of appropriate packaging materials, food additives and preservatives, label printers etc. The problem is much accelerated by lack of well established packaging materials manufacturers and printers. Good quality packaging materials and food additives all need to be imported from abroad, which many of the processors hardly manage or afford. Nevertheless, outsourcing of raw materials and spare parts from overseas, results into a long lead times and high stock levels. Additionally, consistent product quality depends on raw materials consistency accompanied by appropriate processing technology and conditions. Since agricultural activities are not modernized, to get consistent raw materials for example, tomatoes, oranges, mangoes, pineapples among others from one farm to another or from season to season is not easy. Therefore many processors fail to offer consistent quality products to their respective consumers as they find difficulties in getting consistent quality raw materials from their suppliers.

4.8.2 Research and Development

Research and development (*R & D*), is a term that means different things in different applications. In business, *R & D* is an investment in a company's future existence as it enables the company to offer new product to replace the one with decreasing profit or competitiveness. Presently in Tanzania, the organizations addressing the educational and *R & D* requirements are very few and are not fully utilized for the purpose of innovation. In the global market, food professionals need to develop sufficient awareness and other relevant food processing principles including a wide variety of knowledge such as waste management and disposal, SCM, food regulations etc. The professional needs to develop an appreciation of *R & D* and innovation in critical technology areas such as novel process development in preservation and storage techniques, packaging, process control, rheology, colloids among others as it is very important in the food industry for sustainable growth.

4.8.3 Capital Investment and Managerial Skills

Lack of financial institutions to offer substantial amount of loans to the food industry sector in the country still remains as one of the big challenges. Advanced technologies to support production processes require huge capital investment which can be obtained through financial institution such as banks. It is surprising to learn that most of local financial institutions provide small loans at high interest rate between 20% and 30% for banks and sometime high in savings and credit cooperative societies (SACCOS) which can not be feasible for food processors. Management of large working capital to allow expansion and growth of the business requires discipline and managerial skills. Lack of individuals with

relevant skills in the local factories also act as a barrier for obtaining big loans from different financial institutions despite difficult criteria and collateral required before releasing the loan. Banks and other loaning institutions become confident to offer loans to companies with strong and sound managerial skills.

4.8.4 Road Infrastructure and Power Supply

Main trunk roads joining major cities of the country are in good condition according to National Transport policy 2003, only 5% of the road net works are bituminized. Bad road to reach different districts in the country allocated away from the main regional roads contributes much on poor delivery of products to these areas. The situation becomes worse during rainy season; transportation cost goes up if the processor wishes to deliver the products to these areas, other-wise great scarcity of the products occurs. Recent study done (TANROADS 2003a) in Tanzania has shown that improving road condition would significantly lower vehicle operating cost thus increasing the manufacturers' margin profit.

In addition to high transportation costs, poor infrastructure also limits the size of the market and blocks inter-regional trade between the districts, which might provide a viable opportunity for the processors to open up a new market segments.

Reliable electricity and water supply have been a long time problem facing the country as such, processors opt to use generators during power rationing as the result production cost increases along with decreasing profit margin. Water as an import resource in the food industry activities, consistent availability from municipal supply system has not been guaranteed. Companies with stable financial flow, drilling boreholes and installation of purification plants have been their best solutions.

4.8.5 Storage Facilities

Electricity plays a major role in the country's economic development. Though there are deliberate efforts on increasing electrification, still electricity is not a reliable commodity in Tanzania. It does not only affects production processes but also products that depend on cold chain distribution and storage for example, pasteurized and fermented dairy products, meat and meat products, fish etc. Prolonged electricity black out accompanied with favorable tropical condition for microbial growth result into a great loss to the processors, wholesalers, retailers, consumers or the entire supply chain system.

Poor storage facilities do not only lead to product spoilage but also may present health risks to traders as well as to the consumers. Most of traders have small storage areas and facilities which force them to pile up their products resulting into poor ventilation, dusty, and uncomfortable working environment which may affect their health.

5. Conclusions

The result of the study suggests that a lot of efforts need to be addressed to ensure that processors benefits from the concept of SCM. The majority of food processors operate individually without any strong relationship with their downstream partners apart from sell-buy relationship. Each member within the network seeks to optimize individual profit rather than the entire supply network. In the situation where coordination does not exist inefficient supply chain is inevitable this is why local processors are less competitive.

The food industry sector in collaboration with government institutions need to address seriously all of the challenges which are impeding the sector from catching up with the fast growing competitive market. Technology, professionalism, capital investment, managerial skills, and physical infrastructure are playing a major role in hindering the growth and contribution of the food industry sector towards the country's economic growth. Processors in collaboration with the government should work closely to developed good policies, strategies and operational planning which will enable the sector to exert its influence in the competitive global market.

It should be noted that customers needs to be given its deserved weight. In today's competition, firms with a superior ability to provide services that customers perceive as valuable incur an important competitive advantage. The food processors need to make commitments to learn what customers need and set strategies that implement customer friendly process relationship rather than the existing one buy-sell relationship. In most cases customers base their purchasing decisions on the service they receive, not just price, quality and availability of the product that provide superior customer service for the firm is very important.

Our observation also revealed a low level of understanding of food SCM concept among the majority of small and medium food processors. This observation brings out the signals for scientists to extend their researches to cover food processing sector rather than focusing on SCM in agricultural products. This will help processors to reach at a best choice when deciding to implement the concept into the complex processed food supply network.

The method used in this study is primarily qualitative exploratory and not based on probabilistic statistics so it is the researchers' interpretation that is most relevant. Incorporating questions in the questionnaire intended to collect quantitative data for statistical analysis would be a viable direction for further research.

A longitudinal research should be undertaken to include:

- The entire supply chain network i.e. primary and secondary raw material suppliers, processor, distribution centers/wholesalers, retailers and consumers.
- Which strategy to be implemented where and why. It should be clear understood that, food products have different limited shelf lives, different technologies (batch or continuous) can be used to produce the same product, and some requires specific distribution system e.g. cold chain network. All of these have different cost implication of the product.
- Which type of relationship among the supply chain partners should be implemented and the associated incentives to ensure win-win situation
- How to integrate and coordinate among the supply chain partners.

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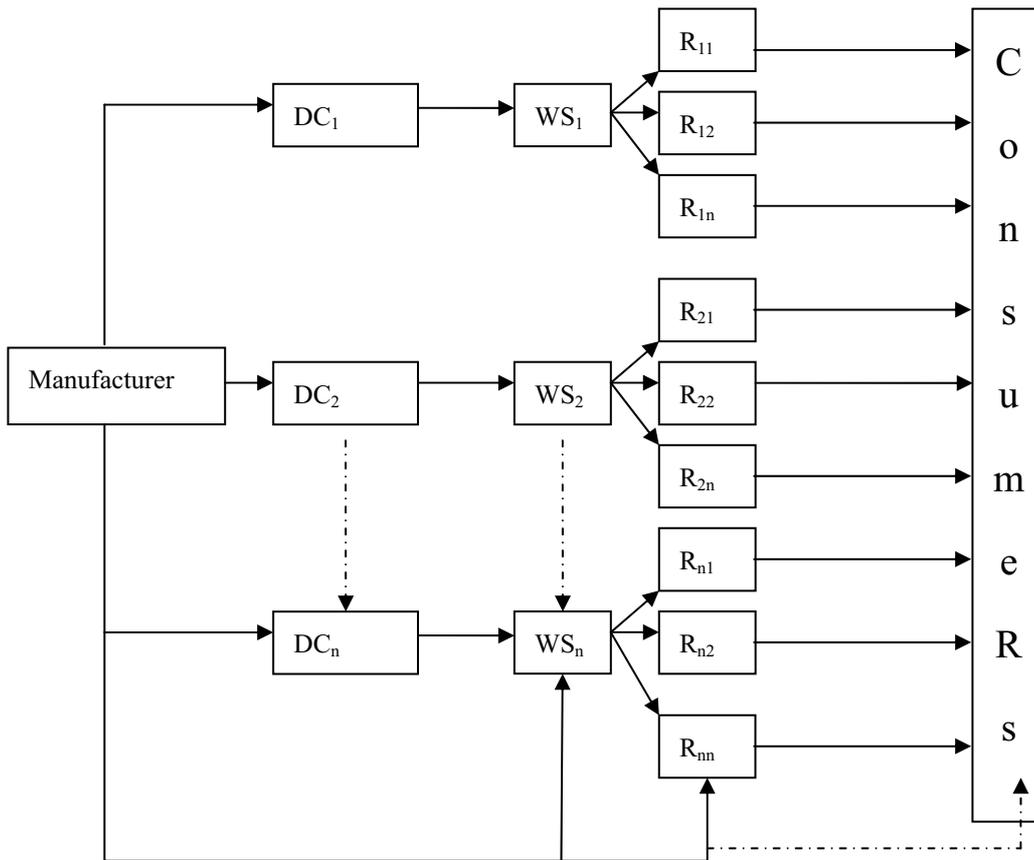


Figure 1. Distribution network

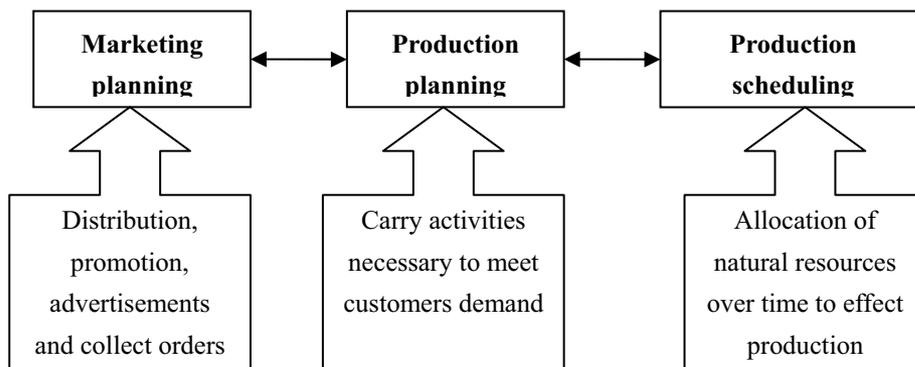


Figure 2. Planning and scheduling in the food industry in Tanzania



Research on Optimization Direction of Industrial Investment

Structure in Inner Mongolia, the West of China

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Abstract

This paper analyzes problems in Inner Mongolia's industrial development investment, illustrating the importance of reasonable optimization of investment structure. According to the real conditions of investment and output in Inner Mongolia, this paper advances the direction of general industrial investment structure optimization, and points out the investment optimization measures in perspective of three industries.

Keywords: Inner Mongolia, Investment structure, Optimization direction

1. Introduction

Investment structure refers to the proportion of fixed asset investments to national economy, social development industries, and regions during certain period. It reflects the pattern of social investments in different economic spaces or geological spaces during certain period. It is an important part of economic structure, directly affecting economic development, industrial structure, and productivity distribution. Industrial investment is an investment concept from the angle of industrial development, and has a similar economic connotation of economic investment and direct investment. It especially emphasizes on the industrial attribution of investment activity and the effect of investment on industrial development. Its result is to increase or complement the asset stock of certain industry and improve the production capacity, namely the potential output. Inner Mongolia, as an undeveloped area in the west of China, has rich resources. Therefore, in order to avoid blind investment and improve economic benefits, with the pre-condition of maintaining the dynamic balance of social supply, we can establish the investment direction correctly, and optimize the investment structure and industrial structure.

2. The Industrial Investment Structure and Problems of Industrial Development in Inner Mongolia

2.1 The Industrial Investment Structure

According to the statistical materials (Table 1) concerning the fixed asset investment in three industries from 1990 to 2007 in Inner Mongolia, analyze the proportion of three industries' fixed asset investment as follow.

From Table 1 and Figure 1, we know that the primary industry's investment proportion does not change a lot. From 2002, it begins to decrease slowly.

The secondary industry's investment proportion fluctuates obviously. Before the "Ninth Five-Year" plan, the secondary industry's investment proportion rises and in 1995 it reaches the top 64.83%. In the period of "Ninth Five-Year", the investment proportion declines seriously, and in 2000 it is the lowest 34.33%. In five years, it decreases by 30%. During the period of "Tenth Five-Year" plan, Inner Mongolia advances the industrial development strategy, focusing on cultivating special and advantage industries. The investment in secondary industry rises fast. The average annual growth rate reaches 10.87%. In "Eleventh Five-Year" plan, the secondary industry's investment proportion is declining slowly.

The tertiary industry's investment proportion fluctuates clearly. Before the "Ninth Five-Year" plan, it tends to decrease. In 1995, it reaches the lowest 26.61%. During the "Ninth Five-Year" plan, investment proportion rises fast and in 2000 it reaches the highest 54.59%. During the "Tenth Five-Year" plan, the investment proportion tends to decrease. Entering the "Eleventh Five-Year" plan, the investment proportion tends to rise along with social progress and development.

2.2 A Comparative Analysis of General Investment Structure and GDP Structure

According to Table 2 and Figure 2, the proportion of primary industry GDP decreases annually. Although the primary industry's investment proportion maintains a stable level, its productivity is far smaller than that of secondary industry and tertiary industry because of the low progress in machines. The investment in primary industry does not exert better

effect.

The proportions of secondary industry GDP and tertiary industry GDP sustain a stable rise, what have a low correlation with investment proportion. It means that changes of investment have a small effect on GDP. Changes of total investment are far larger than changes of GDP. The productivity of secondary industry and tertiary industry rises slowly. Industrial competition is insufficient. Investment does not reach an ideal state.

2.3 Problems in Industrial Development

According to real conditions of investment in Inner Mongolia, there are lots of problems in industrial development. First of all, former dominating industry faces amounts of problems in development. The “advantage industry” selected by Inner Mongolia has serious polarization problem. Technologies are lagged behind. Products are out of date. Famous and excellent products and well-known products are an absence. Secondly, because of the blind choice of dominating industry, it turns into a great waste of social resources. New dominating industry is still weak. It affects the process of western area developing toward an external economy. Thirdly, regional repetitive construction and similar industrial layout are serious, which barriers the update of industrial structure and the advancement of industrial structure.

3. The Optimization Direction of Industrial Investment Structure

3.1 Follow the Law of Investment Structure Evolvement

In developed countries, the evolvement of investment structure shows the common features: the initial origin is agriculture and associated industry. The improvement of agricultural productivity founds capital accumulation and technological basis for the growth and development of modern industry. Then, investment structure optimizes from low grade to advanced grade. It starts from the industry with lower requirements for technologies and added values, and transfers toward the industry with higher requirements for technologies and added values. The scale and the proportion keep in rising. Entering the post industrialization society, investment structure tends to be high technological. The tertiary industry becomes the dominating industry in investment.

Since the “Tenth Five-Year” plan, changes of fixed asset investment proportion in Inner Mongolia are displayed in Table 3.

In Inner Mongolia, the investment of primary industry, mainly the agricultural industry, declines fast. From 2000 to 2007 it decreases by 6.36%, and it tends to decrease annually. The decrease of primary industry investment is in accordance with the law of industrial evolvement. However, considering China’s conditions, a fast drop of primary industry investment will affect the scientific investment in agriculture. It is hard to change the low labor productivity of agriculture. Finally, it will cause a fast decrease of proportion of primary industry to GDP, restraining China’s industrialization process, and influencing the optimization and update of industrial investment structure. Therefore, with the pre- condition of guaranteeing the basic industry of national economy, increase the primary industry’s investment proportion, add more official investment, and make it match up with the level of developed countries.

Because Inner Mongolia has rich resources, including mines and animal husbandry, it steps into the industrial development from 2000, trying to enlarge the modern agglomeration effect based on internal and external resources. The secondary industry’s investment rises fast. Backbone industries develop quickly, driving the development of local economy in Inner Mongolia. The Statistics Data of World Economy shows that the investment proportion of secondary industry to tertiary industry is about 1:1.5. Along with the development of industrial agglomeration, the proportion will be enlarged further. Japan is a right example. In Inner Mongolia, the investment of primary industry is more than that of tertiary industry. Entering the “Eleventh Five-Year” plan, the distance is shortening. In future, decrease investments in secondary industry gradually and adjust the investments in different industries. Restrict the investments in manufacturing industry, and drive the rise of investment in high-tech industries.

During the “Tenth Five-Year” plan, Inner Mongolia advances the whole industrialization strategy, decreasing the importance of tertiary industry. The proportion of investment becomes small. And the development of tertiary industry is constrained. Investment structure is the base for the formation and evolvement of industrial structure. During certain period, the investment structure determines the change and the trend of industrial structure. To optimize investment structure is the main way to optimize industrial structure. In order to achieve the complete upgrade of industry and the sustaining development of economy, we should meet the world society and understand the key effect of tertiary industry in economic development. Therefore, to adjust the investment structure of tertiary industry reasonably can drive the healthy and fast development of tertiary industry in Inner Mongolia, which is the key task of Inner Mongolia adjusting economic structure at present. Meanwhile, open the tertiary industry for non-state-owned economy and introduce a competition mechanism. Increase investments in tertiary industry and adjust internal investment structure. All these measures can drive the urbanization of Inner Mongolia and the sustainable development of economy.

3.2 Help to Exert Regional Advantage and Form Different Regional Structure

The spatial distribution of fixed asset investment is the main aspect of investment regional structure. It not only affects

and determines the layout of productivity in China and the rate of economic growth, but also concerns the national economic growth rate and effect. Therefore, the optimization of investment regional structure is firstly the optimization of investment spatial distribution, namely the reasonable layout of investment in space. Apply the law of unbalanced development of regions. According to changes of key resources restricting and driving national economic development and changes of regional costs and competitive advantages, choose key regions for investment at the right time. By means of “unbalanced” development in different area, achieve the balanced development of regional economy in a long period. Shorten the distance of different areas in economic development. Take the dual goal of “improving effect” and “relative equilibrium” into consideration at the same time. Secondly, there are big differences concerning natural resources, geological locations, and humanism features. These differences determine different bases for regional development, forming the special advantages and restraining factors, and affecting the future development of fundamental industry. For example, different cities in Inner Mongolia have various resources. Ordos has rich mines and cashmere. Baotou has developed steel industry. Therefore, in arranging regional industry structure of fixed asset investment, an important rule is to make best use of regional natural resources, human resources, and sorts of economic resources. With this base, build special local industrial structure and make it tend to be different, driving the regional economy’s reasonable division and coordinative development.

3.3 Fixed Asset Investment Turns into Update and Transformation

The new construction and transformation of fixed assets are the guidance and base for production adopting new technologies. Reasonable industrial investment structure should be good for meeting challenges from world new technological revolution, emphasizing on reforming old enterprises and building new enterprises by advanced technologies and equipments. Arrange more investments in building and development high and new technologies properly. Use advanced high and new technologies to reform traditional industries. Take high and new technologies as the center and continue to reform and update traditional industries, what is not only in accordance with the objective tendency of world economic development, but also the objective requirements and effective ways for China’s industrial modernization. However, investment does not merely means to build new enterprises or enlarging present enterprises. By analyzing the fixed asset investment structure of Inner Mongolia in 2007, we know that the fixed asset investments mainly focus on newly-built projects, and seldom on enlarging or reforming projects, especially the reforming projects. The production and supply of electric power, gas, and water belong to basic industries and highly monopoly industries, which aim at satisfying people’s life and social production. Along with the development of national economy and the improvement of people’s life, the requirements for those industries are higher and higher. Therefore, those industries must update former equipments in time. And this kind of need is larger. So, the proportion of fixed asset newly-built investment is far higher than that of reforming projects. The manufacturing industry has the most industries and the competition is fiercest. It is popular to build new projects and enterprises at a large scale, which may cause unnecessary repetitive construction and investment. Therefore, we should control the proportion of fixed asset newly-built investment and focus on investments in reasonable high-tech reforming.

4. Conclusion

By a dynamic analysis of Inner Mongolia’s industrial investment structure, we find that there are some problems in industrial development. Optimize investment structure reasonably and adjust industrial investment direction. Make investments exert positive effects and achieve the goal of western development program, actualizing the healthy, coordinative, sustainable, and stable development of economy.

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Table 1. Changes of fixed asset investment structure in Inner Mongolia

Changes of investment structure of fixed assets (%)			
Year	Three industries		
	Primary industry	Secondary industry	Tertiary industry
1990	7.62	57.30	35.09
1995	8.57	64.82	26.61
1996	7.75	59.66	32.59
1997	9.36	56.28	34.35
1998	9.64	43.10	47.26
1999	12.75	34.86	52.39
2000	11.09	34.33	54.59
2001	10.19	38.18	51.63
2002	13.11	39.81	47.08
2003	8.29	46.43	45.28
2004	6.69	55.62	37.69
2005	5.22	58.92	35.86
2006	5.67	59.87	34.46
2007	4.73	57.28	37.99

Table 2. The GDP of Inner Mongolia

Changes of GDP structure (%)			
Year	Primary industry	Secondary industry	Tertiary industry
1990	35.3	32.1	27.3
1995	30.4	36.0	29.7
1996	30.6	35.7	29.8
1997	28.0	36.6	30.8
1998	27.1	36.3	30.3
1999	24.9	37.0	30.8
2000	22.8	37.9	31.5
2001	20.9	38.3	31.6
2002	19.3	38.9	31.7
2003	17.6	40.5	32.4
2004	17.2	41.0	33.4
2005	15.1	45.5	37.9
2006	13.1	49.1	41.9
2007	12.5	51.8	45.0

Table 3. Proportion of fixed asset investment from 2000 to 2007 in Inner Mongolia. (%)

Year	Primary industry	Secondary industry	Tertiary industry
2000	11.09	34.33	54.59
2001	10.19	38.18	51.63
2002	13.11	39.81	47.08
2003	8.29	46.43	45.28
2004	6.69	55.62	37.69
2005	5.22	58.92	35.86
2006	5.67	59.87	34.46
2007	4.73	57.28	37.99

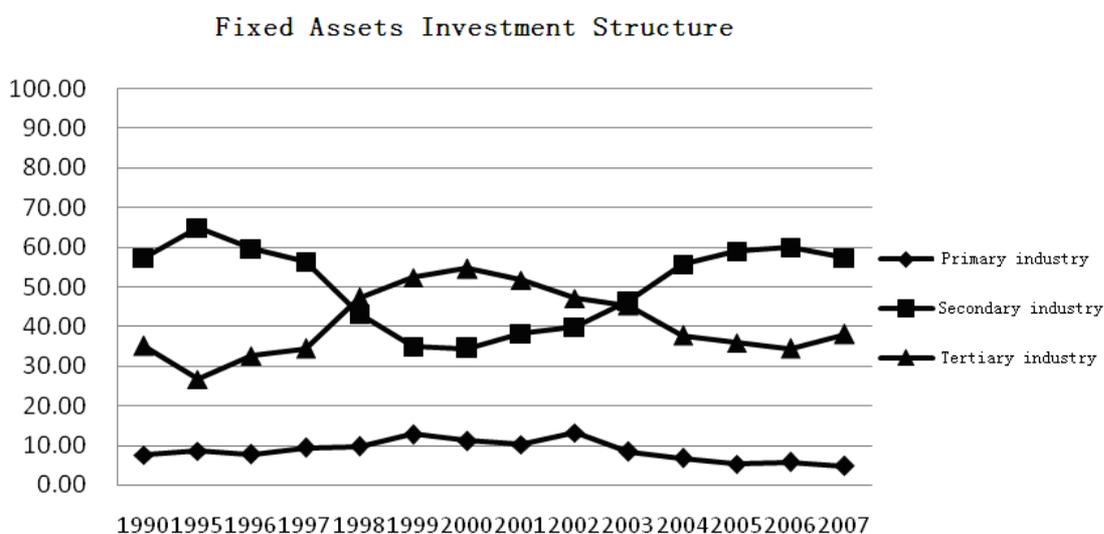


Figure 1. Changes of Fixed Asset Investment Structure in Inner Mongolia

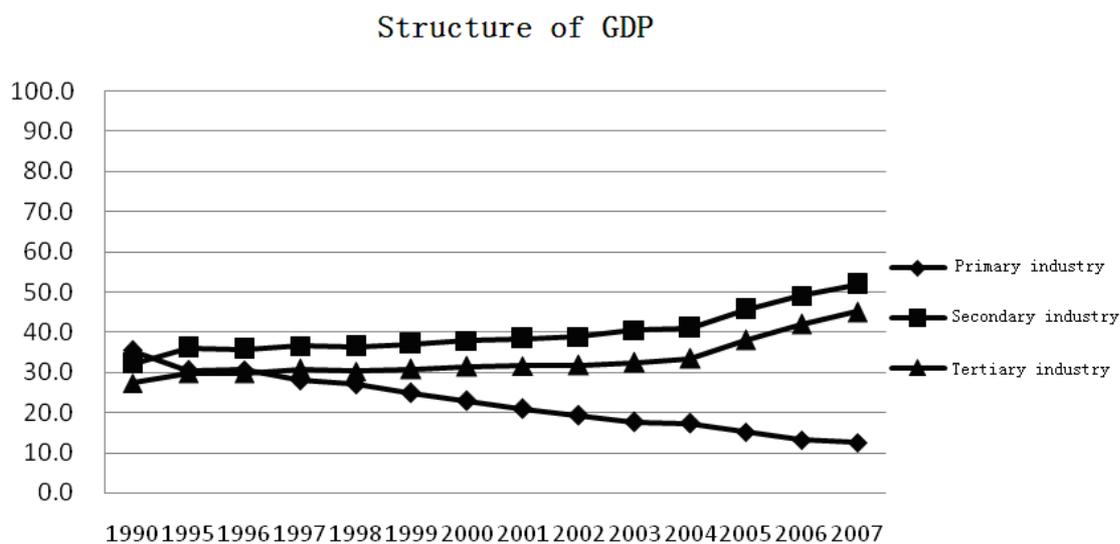


Figure 2. Changes of GDP Structure in Inner Mongolia



A Preliminary Study on Rural Circular Economy System in Jilin

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Abstract

As an important base for marketable grain and stockbreeding, Jilin pays much attention to developing its rural circular economy. Based on grey relational analysis, this paper conducts a preliminary discussion on the construction of the rural circular system in Jilin province which is intended to optimize resource utilization, to protect rural production environment and to promote sustainable development.

Keywords: Countryside, Circular economy, Grey relationship

1. Jilin's Advantages in Developing Rural Circular Economy

1.1 Agricultural Advantage

As an important base for marketable grain and stockbreeding, Jilin has produced a large amount of high-quality farming and animal products. To be exact, Jilin ranks first in per capita share of grain, commodity, off-take, export and production of marketable grain and has been in the first place on the list of per capita share of meat in China for 6 years. It has kept the records for many years of about 900-kilogram per capita share of grain, commodity rate of over 70%, over 20-billion-kilogram commodity production, over 5-billion-kilogram export capacity, over 5 times the national per capita production of marketable grain average and 100-kilogram per capita share of meat. In the structure of variety and quality, there has been great improvement in both quantity and quality. Good-quality corn, rice and bean have taken up over 50% of the whole sown area; improved stockbreeding has gone to every corner of the whole province; industrial management has taken shape; an array of leading enterprises in agricultural product processing, such as Deda Company, have ranked among the top ones in the similar industries over the whole nation (Chu, 2007).

1.2 Environmental Advantage

Jilin has long history of agricultural production and therefore favorable natural environment. Compared with those developed provinces, it has lower degree of modernization and fewer utilized chemicals, hence less environmental pollution. Besides, its air and water pollution is not so serious as that in some developed areas in Middle and Western China. As a result, here air, water, soil and creatures make up a favorable ecosystem with strong restorability.

1.3 Advantage in Agricultural Science and Technology

Jilin has three colleges specializing in cultivating talents in agricultural science and technology, including Jilin Agricultural University, Agricultural College of Yanbian University and Jilin Agricultural Science and Technology College, as well as over 20 agriculture-related majors, such as Biological and Agricultural Engineering College of Jilin University, Agricultural Science of Jilin University and so on. Over the past decades, Jilin has cultivated a lot of science and technology talents who are good at production and management skills. It is shown in statistics that in 2004 there were 3.7 agricultural science and technology talents in every 10 thousand rural people in Jilin, which was over twice the national figure. Therefore, its advantage in talents has provided powerful technological support for the development of Jilin's rural circular economy (Fang, 2007).

2. Target Location of the Construction of Jilin's Rural Circular Economy

2.1 Evaluation System for Jilin's Rural Circular Economy

The evaluation system on rural circular economy provides foundation for an overall evaluation on Jilin's current situation of a harmonious development of agricultural resources, environment, economy and social system, which are independent from as well as interact with each other. Employing both quantitative and qualitative methods, we mainly draw data from Jilin Yearbook of Statistics in 2008 and establish the evaluation index system including 18 indexes.

2.2 Evaluation on the Construction of Jilin's Rural Circular Economy

2.2.1 Multilevel Grey Relational Analysis

Grey relational analysis is based on the relation between two sequences with the purpose to examine the correlation among different factors (Li, 2004). The following specific steps should be followed:

An index set involving some major evaluation indexes should be established:

$$X_i = \{x_i(1), x_i(2), \dots, x_i(k)\} \quad i=1,2,3,\dots,m$$

(k: the number of indexes, i: certain period of time, X_i : the statistic sequence of evaluation indexes at the corresponding time or region)

(1) Target Sequence

Among all the sequences established at different times, we set up a target one according to the established principles. With time sequence employed in this paper, we make the final time sequence as the best one.

(2) Normalization of Indexes

Indexes can be divided into positive direction, which refers to a positive relation between the value of an index and its effect, and negative one, which goes to the other extreme.

With $x_i(k)$ given and $T_{\max} = \max x_i(k)$, $T_{\min} = \min x_i(k)$ defined, normalization relation for positive indexes will be

$$y_i(k) = (x_j(k) - T_{\min}) / (T_{\max} - T_{\min})$$

And that for negative indexes will be

$$y_i(k) = (T_{\max} - x_j(k)) / (T_{\max} - T_{\min})$$

(3) the Calculation of correlation coefficient: the correlation coefficient between X_i in each sequence and the corresponding index in the target sequence.

$$\varepsilon_i(k) = \frac{\min_i \min_j |y_0(k) - y_i(k)| + \rho \max_i \max_j |y_0(k) - y_i(k)|}{|y_0(k) - y_i(k)| + \rho \max_i \max_j |y_0(k) - y_i(k)|}$$

In the above formula, $|y_0(k) - y_i(k)|$ refers to the value of the absolute yield spread of k in the target sequence and its subsequences; $\min_i \min_j |y_0(k) - y_i(k)|$ refers to the minimum among the absolute yield spreads of every index of the target sequence and all of its subsequences while $\max_i \max_j |y_0(k) - y_i(k)|$ refers to the maximum; ρ , the resolution ratio, is valued as 0.5 here.

(4) Weight of Structure Index

w, the weight of indexes at Level L in relation to those at Level L-1, should be confirmed.

(5) the Calculation of Degree of Association and Interconnection Vector

Weighed calculation of the degree of association should be conducted to examine the importance of indexes at each level for those at the upper level. The weighed degree of association in all subsequences of the target sequence should be:

$$r_j = \sum_{k=1}^k w^{(l)} \varepsilon_i(k)$$

Finally comes the interconnection vector R, which enables us to have a deep comparison of the construction of circular economy at different times with multilevel grey relational analysis.

2.2.2 Confirmation of Weight

The following values of weight are confirmed according to multilevel grey relational analysis, as is shown in Table 2.

2.2.3 Evaluation on Jilin's Rural Circular Economy System

Based on the grey relational analysis on the time sequence, we selected the planned value in 2020 as our target sequence. The indexes in 2007 were lower than those in 2010 and 2013. By 2010, the indexes of economic development and social support drew near to 0.5 and that of environmental quality even exceeded 0.5, showing Jilin's effective measures

in environmental protection. Meanwhile, the growth in the indexes at the control level shows that Jilin's adjustments especially those in environmental protection during the Eleventh Five-Year Plan have stimulated the harmonious growth of all indexes. Only by starting from its reality in social economics and agriculture can Jilin accomplish its harmonious development of economy and society. It is its efforts in recycling resources that provide new powerful drive for constant, harmonious and sound development of its rural economy.

It is shown in Table 3 that the indexes of recycling resources, environmental quality and social support have approached or exceeded 0.5 from 2007 to 2010, reflecting Jilin government and society's emphasis on the construction of rural circular economy as well as effective administration on environmental quality. The period from 2010 to 2013 will witness the greatest growth (0.187) in the correlation in recycling resources, showing more efforts will be made to recycle resources in rural economy. In addition, there is also growth in other aspects. To sum up, Jilin's rural circular economy has been developed into an advanced level, reflecting the positive effects a favorable rural circular economy pattern has on the whole rural environment.

3. Policy Orientation for the Development of Jilin's Rural Circular Economy

3.1 Establishing an Institutional Frame for Rural Circular Economy

3.1.1 Government's Policy Orientation

Rural circular economy is based on government orientation, therefore, favorable institutional environment can be created by intensifying government's policy guidance. First of all, policy support system should be perfected, mainly in input policy and land contract system, and rural security system should be improved as well to guarantee peasants' production and life, hence offering favorable support for the development of rural circular economy; second, government stimulation system should also be established, in which encouragement and punishment should both be strengthened to guide the development of rural circular economy. Only when it is possible for peasants to benefit from recycling resources and protecting the environment with the establishment of some relevant policies will rural circular economy gain rapid development.

3.1.2 Government's Legal Support

It is a new field to develop rural circular economy and accomplish conservation-oriented agriculture, so governments at all levels should provide support in laws, rules and regulations. Only with legislative construction will circular economy be converted from an economic theory to codes of conduct to be followed by people.

3.1.3 Perfecting Agencies Supporting Rural Circular Economy

Rural professional institutions should be relied on to promote the development of rural circular economy. Such organizations in China are actually agencies which perform many functions such as information consultation and transmission, technological guidance and training, serving peasants and so on. Due to their advantages in good communication with peasants, these organizations can be depended on to encourage them to develop rural circular economy.

3.2 Exerting the Role of Economic Methods in Rural Circular Economy

3.2.1 Constructing a Price Regulation System of Rural Natural Resources

First, rural land ownership should be further clarified, including rights of contract for management of land, profits from leasehold, mortgage of property and so on. Second, the prices of water resources and water supply should be fixed reasonably. Meanwhile, the compensation system for water resources protection should also be carried out to protect water resources with economic methods. Third, the evaluation of natural environment value should be conducted and a system of paying for environment utilization should be established. Only with reasonable price will rural resources be utilized properly and its circular development be promoted.

3.2.2 Actively Promoting Rural Industrial Operation

Rural industrialization, focused on marketization and intensification of rural operating activities, is a practical way to accomplish Jilin's rural circular economy. Here, the principle of "integrated, coordinated and recycling reproduction" should be followed to optimize the rural industrial structure and a complete industrial development chain with the combination of farming, stockbreeding and processing as well as that of agriculture, forestry, stockbreeding, sideline production and fisheries should be established to achieve the comprehensive goal of utilizing natural eco-resources in an overall and multilevel way and having the harmonious development of economy, ecosystem and society.

3.2.3 Increasing Input for the Establishment of a Diversified Investment and Financing System

First, the input for rural development should be further increased; second, rural finance system should be innovated through which financing channels can be expanded; third, more favorable conditions should be provided to attract industrial and commercial capital as well as private capital to invest in the development of rural circular economy.

3.3 Establishing the Philosophy for the Development of Rural Circular Economy

Green economic accounting system should be established to promote the rapid development of circular economy. EDP refers to an accounting on environmental resources in present GDP with environmental cost and fees for protecting environmental resources excluded and some external influences taken into consideration. Therefore, Jilin should facilitate its steps in establishing its green economic accounting system and carrying it out all over the province as soon as possible (Cui, 2008).

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Table 1. Evaluation index system for Jilin's rural circular economy

Control Level	Target index system	Current situation	Short term	Medium term	Long term
	Index level	2007	2010	2013	2020
Reducing input of resources	X1 Chemical utilization intensity (net)	285	270	250	220
	X2 Effective utilization rate of agricultural energy(%)	34	36	38	40
	X3 Chemical utilization intensity in agriculture (net)	9	9	8	8
Recycling resources	X4 Recovery rate of agricultural plastic films	85	88	82	>90
	X5 Comprehensive utilization rate of straw	78	80	82	>90
	X6 Recycling rate of animal excrement	35	41	45	>50
	X7 Recycling rate of agricultural disposal	<45	60	70	>80
Environmental quality	X8 Forest acreage	43.4	45	47.5	>50
	X9 Area of Protected regions	12	>15	>18	>25
	X10 Disposal rate of animal excrement	86	90	94	100
	X11 Treatment rate of degrading land	85	90	>90	>90
	X12 Comprehensive index of air pollution	3.08	2.87	2.70	2.21
Economic development	X13 Agricultural output(in 100 million yuan)	1418.90	1605.30	1805.74	2376.23
	X14 Per capita net agricultural income(yuan/person)	4189.89	4350	5036.67	7085.69
	X15 Drinking water qualification rate in villages and small towns	70	90	95	>95
Social support	X16 Contribution rate in agricultural science and technology	50	>55	>56.5	>60
	X17 Government administration capacity	12.94	11	9.28	5
	X18 Engel coefficient	40	38.8	37.6	<30

Note: the planning for governmental administration capacity is made with reference to *Indexes for all-round Construction of a Well-off Society* given by R&D Center of the State Council of P. R. C.; the planning for the comprehensive index of air pollution as well as the contribution rate of agricultural science and technology is made according to China's Eleventh Five-Year Plan; other indexes are made according to *Jilin Yearbook of Statistics* in 2008; the planned target growth rate is confirmed according to Jilin's Eleventh Five-Year Plan.

Table 2. Weight of indexes for Jilin's rural circular economy

Control Level	Target index system	Weight
	Index level	
Reducing input of resources	A1 Chemical utilization intensity (net)	0.357
	A2 Effective utilization rate of agricultural energy(%)	0.279
	A3 Chemical utilization intensity in agriculture (net)	0.362
Recycling resources	A4 Recovery rate of agricultural plastic films	0.280
	A5 Comprehensive utilization rate of straw	0.297
	A6 Recycling rate of animal excrement	0.222
	A7 Recycling rate of agricultural disposal	0.202
Environmental quality	A8 Forest acreage	0.228
	A9 Area of Protected regions	0.198
	A10 Disposal rate of animal excrement	0.169
	A11 Treatment rate of degrading land	0.203
	A12 Comprehensive index of air pollution	0.206
Economic development	A13 Agricultural output(in 100 million yuan)	0.337
	A14 Per capita net agricultural income(yuan/person)	0.400
	A15 Drinking water qualification rate in villages and small towns	0.263
Social support	A16 Contribution rate in agricultural science and technology	0.411
	A17 Government administration capacity	0.398
	A18 Engel coefficient	0.191

Note: these weight values are confirmed according to Bin Liu's *A Study on the Development Pattern and Policy Orientation of Hebei's Rural Circular Economy*.

Table 3. The correlation among indexes at different levels of Jilin's rural circular economy construction

Index		Year		
		2007	2010	2013
Control level	Reducing input of resources	0.332	0.388	0.72
	Recycling resources	0.333	0.390	0.577
	Environmental quality	0.334	0.523	0.616
	Economic development	0.333	0.455	0.604
	Social support	0.332	0.433	0.538
Target level	Comprehensive level of rural circular economy	0.333	0.438	0.611



An Optimal Supply Policy for Multi-product Multi-retailer Using Simulated Annealing Method

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Abstract

We consider a multi-product multi-retailer supply and inventory system. The total costs which include inventory cost and transport cost belong to the supplier. The transport cost consists of a major carrier cost and a minor delivery cost for each product. The total costs saving can be achieved by coordinating the supply of a group of products. Applying for each individual product a cyclic supply and inventory policy, where the delivery cycle time is a multiple of basic cycle time, can reduce the total costs. A modified simulated annealing method (MSA) to determine the optimal supply policy is proposed in this paper. A numerical example presents that the MSA is feasible. Experiment results show that the MSA algorithm significantly outperforms other solution method in the quality of the solution as well as in the running time.

Keywords: Supply and inventory system, Multi-product multi-retailer, Simulation annealing

1. Introduction

In the real world, products are usually jointed to ship to multiple retailers by suppliers in order to reduce costs such as on construction material, steel piping material and steel structure products distribution. The supplier has to consider the holding cost of products and the transport cost to minimize the total cost. In the classical EOQ model without considering joint supply, optimal ordering size and basic cycle time is computed based on the demand of retailers. But when delivery products are considered to be jointed to replenish, the problem is termed as the joint replenishment problem (JRP).

The JRP has been extensively studied during the past two decades. Many iterative solution techniques of JRP have been presented in the literature. Kaspi and Rosenblatt (1991) proposed a RAND approach for solving the economic ordering quantity for jointly replenished products. The authors conducted an extensive simulation study and concluded that the RAND solution procedure outperforms previously known algorithm (Goyal 1974) for solving this problem. They claimed that using RAND 10 compared to optimal (full enumeration) solution, the maximum error value found is less than 0.2%. Goyal et al. (1993) suggested a modified procedure which used a better estimate for the lower bound of the basic cycle time. Wildeman (1997) presented an efficient optimal solution method for JRP by applying Lipschitz optimization to obtain a solution with an arbitrarily small deviation from the optimal solution. Frenk et al. (1999) proposed an efficient algorithm with 'Improved-feasibility procedure' to determine the optimal policy of the multi-product and one-buyer inventory problem. Khouja et al. (2000) used 1200 randomly generated problems to make a comparison between genetic algorithms and the RAND method for solving the JRP. The GA found the solutions with the same total cost as the RAND for 761 problems, outperformed the RAND for six problems and under-performed the RAND for 433 problems. The maximum percentage savings in total cost provided by the RAND was 0.078%. Olsen (2005) developed an evolutionary algorithm (EA) that used a direct grouping method to solve JRP. The authors showed that EA for joint replenishment policy incurs a lower total cost than the best available algorithm for some parameters of factor. Overall the EA improved over the RAND for 5.1% of the 72,900 randomly generated problems. The maximum percentage savings in total cost provided by the RAND was 0.69% from the 72,900 problems.

Recently, Moon et al. (2006) developed two algorithms for solving JRP with resource restriction. The main resource restriction in their paper is capital that can be invested. One of the algorithms is to modify the existing RAND algorithm

to be applicable to this problem and another is to develop a genetic algorithm for the JPR with resource restriction. Hoque (2006) developed a generalized global optimal solution algorithm of the JPR extended model which includes some practical issues

Most of the literature has considered the JRP as a problem of coordinating the supply of multi-product for a single retailer. But a common practice for a supplier is to have multi-retailers who order multi-product from the supplier. In this case, the JRP becomes a multi-product multi-retailer joint replenishment problem (MJRP). The MJRP has received little attention in the literature until recently. Chan et al. (2003) proposed a new modified genetic algorithm for solving the MJRP. The performance test was compared to the algorithm of Goyal (1974) and got a better result. Li (2004) proposed a modified RAND method to solve the MJRP, but without a performance test. Chan et al. (2006) addressed the delivery scheduling issue for MJRP, once the optimal replenishment cycles are determined, by formulating four problems according to four different objectives in cost and resource minimization. The authors used the solution of the optimal replenishment cycles which had been solved to do the post research for optimal scheduling.

In previous reviews, MJRP has received little attention, and although many heuristics and exact methods have been proposed to solve JRP or MJRP, very few papers so far adopts the simulated annealing (SA) method to solve these problems. When adapted efficiently to optimization problem, SA is often fast convergence and ease of implementation. These characteristics motivate the applying of SA for MJRP problem. In this paper we proposed a modified simulated annealing method (MSA) to determine the optimal supply policy for MJRP. A numerical example is employed to present the feasibility of MSA. Simulation experiments are conducted to confirm the performance of MSA algorithm comparing with other solution methods.

2. Problem Formulation

A single supplier supplies multi-product products to multiple retailers. The total costs of the supply system include the holding cost and transport costs. The holding cost of all consignment inventories belongs to the supplier. The transport costs consist of two components, one is major carrier cost and another is minor delivery cost. The major carrier cost charged is fixed and the minor delivery cost of each product for each retailer would continue to be added per delivery. Each retailer has a deterministic demand for each product. A supply network of joint supply distribution system is shown in Figure 1.

The basic definitions in this problem include deterministic demand, holding cost is a fraction of the product cost, major carrier cost is fixed, and no shortages allowed. The following notation is defined:

P	The set of products, $P = \{1, 2, \dots, I\}$,
R	The set of retailers, $R = \{1, 2, \dots, J\}$,
I	The number of product items,
J	The number of retailers,
D_{ij}	Demand of product i for retailer j ,
h_{ij}	Inventory holding cost of product i for retailer j , per unit per unit time,
c_{ij}	Unit cost of product i for retailer j ,
S	Major carrier cost,
s_{ij}	Minor delivery cost of product i for retailer j ,
T	Delivery basic cycle time (Decision variable),
t_{ij}	Delivery cycle time of product i for retailer j ,
K_{ij}	The ratio of t_{ij} to T , $K_{ij} = t_{ij} / T$, K_{ij} is an integer (Decision variable),
C_T	Total costs consist of holding cost, major carrier cost and minor delivery cost.

The goal of the supply policy is to arrange the optimal delivery scheduling, and to minimize the total costs. The annual holding cost of product i for retailer j is $C_h = h_{ij} c_{ij} D_{ij} t_{ij} / 2$. The annual major carriers cost is $C_M = S / T$. The annual minor delivery cost of retailer j is $C_m = s_{ij} / t_{ij}$. The total costs are

$$C_T = C_h + C_M + C_m = \sum_{i=1}^I \sum_{j=1}^J h_{ij} c_{ij} D_{ij} t_{ij} / 2 + S / T + \sum_{i=1}^I \sum_{j=1}^J s_{ij} / t_{ij} \quad (1)$$

To reduce total costs, products joint supply policy is considered. Thus t_{ij} should be the integer multiple to T , i.e. $t_{ij} = K_{ij} T$, $K_{ij} \in Integer$. The objective function can be obtained from equation (1) and the constraint is shown as

$$\min C_T(T, K_{ij}) = \frac{T}{2} \left(\sum_{i=1}^I \sum_{j=1}^J h_{ij} c_{ij} D_{ij} K_{ij} \right) + \frac{1}{T} \left(S + \sum_{i=1}^I \sum_{j=1}^J s_{ij} / K_{ij} \right) \tag{2}$$

s.t.

$$K_{ij} \in \text{int}, \forall i \in P, j \in R \tag{3}$$

In above model, all the values of K_{ij} must be positive integers. It is a nonlinear integer problem.

3. Methodology

3.1 Bounds on Basic Cycle Time

Before giving the solution method, bounds on basic cycle time T need to be discussed. The optimal basic cycle time can be derived from (2) by $\partial C_T / \partial T = 0$

$$T^* = \left(\frac{2(S + \sum \sum s_{ij} / K_{ij})}{\sum \sum h_{ij} c_{ij} D_{ij} K_{ij}} \right)^{1/2} \tag{4}$$

T^* is a function of K_{ij} and K_{ij} are the decision variables of T^* . The lower bound of $K_{ij} = 1$. The upper bound of T^* can be decided when $K_{ij} = 1, \forall i \in P, j \in R$.

$$T_{\max} = \left(\frac{2(S + \sum \sum s_{ij})}{\sum \sum h_{ij} c_{ij} D_{ij}} \right)^{1/2} \tag{5}$$

If the product i for retailers j is delivered independently, the optimal cycle time of each product i for retailer j can be calculated from classical EOQ model.

$$\hat{t}_{ij} = \left(\frac{2(S + s_{ij})}{h_{ij} c_{ij} D_{ij}} \right)^{1/2} \tag{6}$$

When the product is jointly delivered with other products, the common delivery cost $S = 0$, the optimal cycle time for each product i to retailer j is

$$\bar{t}_{ij} = \left(\frac{2s_{ij}}{h_{ij} c_{ij} D_{ij}} \right)^{1/2} \tag{7}$$

Kaspi and Rosenblatt (1991) proposed a lower bound of T^* , which can be modified for MJRP to be decided by the minimum joint delivery cycle for all \bar{t}_{ij} ,

$$T_{\min} = \text{Min}_{i,j} \{ \bar{t}_{ij} \} \tag{8}$$

Goyal et al. (1993) suggested a better estimate for T_{\min} in the single retailer model, which is modified by Lin (2004) and employed for multiple retailers.

$$T_{\min} = \left(\frac{2(S + \sum \sum s_{ij} / K_{ij}(t_1))}{\sum \sum h_{ij} c_{ij} D_{ij} K_{ij}(t_1)} \right)^{1/2} \tag{9}$$

Where $t_1 = \text{Min}_{i,j} \{ \bar{t}_{ij} \}$

The formula (9) is obtained from the first iteration, which Kasp & Rosenblatt (1983) applied in an iterative way until the value of K_i is converged in the computing procedure of JRP.

The upper bound T_{\max} is easily obtained from equation (5). The lower bound of T^* can be obtained from equation (8) which is modified from one Kaspi and Rosenblatt (1991) proposed for solving JRP. In this paper we used another lower bound of T^* from equation (9) which is modified from an equation Goyal at al (1993) suggested and tested by simulating a better estimate for T_{\min} to solve JRP.

3.2 The Genetic Algorithm Method

The JRP is a NP-hard problem proven by Arkin et al. (1989). Khouja et al. (2000) applied the genetic algorithm (GA) to

solve JRP and Chan et al. (2003) applied the GA to solve MJRP. They used the ratio of product delivery cycle time to the basic cycle time (K_{ij}) as the genes in a chromosome. The chromosomes represent the integer multipliers of basic cycle time (T) for each product delivered to each retailer. Khouja et al. (2000) used the upper bound and lower bound of T from equations (5) and (8). The lower bounds on the values of K_{ij} are $K_{ij}^{LB} = 1$, where $i = 1, 2, \dots, I$, $j = 1$. They obtained the upper bounds on the K_{ij} by using equations (6) and (8). The values of K_{ij}^{UB} are given by:

$$K_{ij}^{UB} = \left\lceil \frac{\hat{t}_{ij}}{T_{\min}} \right\rceil, \text{ where } i = 1, 2, \dots, I, \text{ and } j = 1 \text{ in JRP.} \quad (10)$$

Let u_{ij} denote the smallest integer such that the value of $2^{u_{ij}}$ is larger or equal to the upper bound K_{ij}^{UB} . An integer number from the range $[1, 2^{u_{ij}}]$ can be encoded and corresponded to the binary sequence bits u_{ij} . The genetic representation for possible solutions is created by using the genes K_{ij}

$$K_{ij} = \left(\sum_{n=1}^{u_{ij}} b_n \cdot 2^{n-1} \right) + 1 \Rightarrow \langle b_{u_{ij}} b_{u_{ij}-1} \dots b_1 \rangle \quad (11)$$

The integer number from the range $[1, 2^{u_{ij}}]$ is the number between the lower bound and upper bound of K_{ij}^{UB} . Each individual chromosome in the population represents a possible solution to the problem. The binary chromosome can be converted into a decision variables representation of K_{ij} , after the GA operation. The evaluation function is responsible for rating these possible solutions when each decision variable is assigned. Khouja et al. (2000) used an evaluation function which can be modified for MJRP.

$$C_T(K_{ij}) = \left(2 \left(S + \sum_{i=1}^I \sum_{j=1}^J s_{ij} / K_{ij} \right) \left(\sum_{i=1}^I \sum_{j=1}^J h_{ij} c_{ij} D_{ij} K_{ij} \right) \right)^{1/2} \quad (12)$$

Equation (12) is a function of the values K_{ij} , the number of decision variable K_{ij} is $I \times J$. Using the genes K_{ij} , the total length of the binary chromosomes is $\sum \sum u_{ij}$ bits. The disadvantage of using the genes K_{ij} to form chromosome is that the genes need to be encoded and decoded during GA operation. However, encoding and decoding the chromosomes will increase computing time. In this paper we propose to directly use the decision variable vector of K_{ij} as the presentation without encoding and decoding in simulated annealing method (SA).

3.3 Simulated Annealing

Kirkpatrick et al. (1983) proposed the optimization approach by simulated annealing method (SA). A SA algorithm repeats an iterative neighbor generation procedure and follows search direction that improves the objective function. While searching optimal solution, the SA method offers the possibility to accept worse neighbor solution in order to avoid getting a local optimal solution. A cooling scheme specifies how it should be progressively reduced to make the procedure more selective as the search progresses to neighborhood of good solutions.

Using SA to an optimization problem should include following components: a solution representation of decision variables, a method for objective function value evaluation, a neighbor generation mechanism for possible solution exploration and a cooling scheme and stopping criteria. The general procedure of SA algorithm is as follows:

1. Choose a random vector X_i , select the initial system temperature, and specify the cooling schedule.
2. Evaluate $E(X_i)$ using a simulation model.
3. Perturb X_i to obtain a neighboring design vector (X_{i+1}).
4. Evaluate $E(X_{i+1})$ using a simulation model.
5. If $E(X_{i+1}) < E(X_i)$, X_{i+1} is the new current solution.
6. If $E(X_{i+1}) > E(X_i)$, then accept X_{i+1} as the new current solution with a probability $e^{-\Delta/\tau}$, where $\Delta = E(X_{i+1}) - E(X_i)$.
7. Reduce the system temperature according to the cooling schedule.
8. Terminate the algorithm.

where

X_i : Design vector

E : System energy (i.e. Objective function value)

τ : System temperature

Δ : Difference in system energy between two design vectors

3.4 Modified Simulated Annealing

The MJRP model is a MINLP problem. The decision variables of optimizing total costs include the K_{ij} and T , therefore the number of decision variables is $I \times J + 1$, the problem size depends on the products I and retailers J . It is not easy to directly obtain the optimal solution for a large size problem. We propose modified simulated annealing method to solve these problems.

Base on components of using SA, in this paper we directly use the decision variable vector of K_{ij} as the presentation without encoding and decoding in SA. The presentation of design vector $K_{ij} \in [K_{ij}^{LB}, K_{ij}^{UB}]$, where we compute the low bound of K_{ij} with the equation $K_{ij}^{LB} = \lfloor T_{\max} / \bar{t}_{ij} \rfloor, \forall i \in P, j \in R$, and K_{ij}^{UB} can be derived from equations (9) and (10). The objective function value can be evaluated by (4) and (2). The neighbor generation mechanism for possible solution exploration is created:

$$K_{ij}^{new} = K_{ij}^{current} + \lfloor f \cdot random(-1,1) \cdot (K_{ij}^{UB} - K_{ij}^{LB} + 1) \rfloor \tag{13}$$

where $f = \{ [y_{ij}] \mid y_{ij} \in \{0,1\}, \sum \sum y_{ij} = 1, \forall i \in P, j \in R \}$

if $K_{ij}^{new} > K_{ij}^{UB}, K_{ij}^{new} = K_{ij}^{UB}$.

if $K_{ij}^{new} < K_{ij}^{LB}, K_{ij}^{new} = K_{ij}^{LB}$.

The cooling scheme is set $\tau \leftarrow \alpha \cdot \tau$, where $0 < \alpha < 1$, and if $\tau < \tau_{stop}$, then stop the algorithm. The algorithm procedure of MSA is as follows.

- Step 1. Read problem parameters: $I, J, D_{ij}, h_{ij}, c_{ij}, S$ and s_{ij}
- Step 2. Randomly generate a design vector K_{ij}^{init} , where $K_{ij}^{init} \in [K_{ij}^{LB}, K_{ij}^{UB}]$, and compute objective function value C_T^{init} from equation (4) and (2)
- Step 3. Save K_{ij}^{init} as best schedule K_{ij}^{best} and C_T^{init} as best objective function value C_T^{best}
- Step 4. Save K_{ij}^{init} as current schedule $K_{ij}^{current}$ and C_T^{init} as current value $C_T^{current}$
- Step 5. Read the MSA parameters: $\tau_{init}, \tau_{stop}, \alpha$
- Step 6. Let $\tau = \tau_{init}, finished = 0$
- Step 7. While $finished \neq 1$
 - Generate a new neighbor K_{ij}^{new} of the current solution $K_{ij}^{current}$ from neighbor generation mechanism equation (13)
 - Calculate C_T^{new} from equation (4) and (2)
 - Calculate $\Delta = C_T^{new} - C_T^{current}$
 - If $\Delta < 0$, then $K_{ij}^{current} = K_{ij}^{new}, C_T^{current} = C_T^{new}$
 - If $C_T^{new} < C_T^{best}$, then $K_{ij}^{best} = K_{ij}^{new}, C_T^{best} = C_T^{new}$
 - Else If (*probability (random)* $< e^{-\Delta/\tau}$), then $K_{ij}^{current} = K_{ij}^{new}, C_T^{current} = C_T^{new}$
 - End
 - End
 - If $\tau < \tau_{stop}$, then $finished = 1$
 - Else $\tau = \alpha \cdot \tau$
 - End
 - End While
- Step 8. Output the best solution $K_{ij}^{best}, C_T^{best}$

In order to test the performance, a numerical example is shown in next section and simulation experiments are designed in section 5.

4. Numerical Example

A numerical example of five products and four retailers is employed to demonstrate the MSA algorithm. The supplier who supplies the piping insulation materials has four retailers. The insulation products have five items including 2", 3", 4", 6" and 8". The problem data are as follows. $D_{ij} = [100000 \ 50000 \ 4000 \ 1800 \ 6000; 4000 \ 3000 \ 4000 \ 5000 \ 3000; 4000 \ 3000 \ 1000 \ 2000 \ 1500; 2000 \ 1800 \ 1200 \ 800 \ 200]$, $S = 2000$, $s_{ij} = 500$, $h_{ij} = 0.1$, $c_{ij} = [50 \ 80 \ 100 \ 120 \ 200; 50 \ 80 \ 100 \ 120 \ 200; 50 \ 80 \ 100 \ 120 \ 200; 50 \ 80 \ 100 \ 120 \ 200]$. The values of parameter for the MSA operation are set:

$$\tau_{init} = 150, \tau_{stop} = 1 \cdot e^{-6}, \alpha = 0.85 + 0.05 \cdot random.$$

The convergence diagram of MSA operation is illustrated in figure 2, and the computing results are summarized in

Table 1. In Table 1, the values of K_{ij} is obtained, the optimal delivery scheduling is shown by transport frequency with twelve times. The optimal delivery basic cycle time T^* is 0.07841 annual. The minimum total costs of annual inventory and transport cost are 165,790 dollars. Comparing the policy with independent supply which minimum total costs are 299,420 dollars, the total costs can be reduced 44.628%.

5. Simulation Experiments and Results

The simulation experiments are designed to confirm the performance of the MSA algorithm, and then are compared with the GA algorithm (Khouja et al. 2000) which has been tested and shown to have good performance. For comparison, the parameter ranges of test problems and the values for parameters of GA are the same with Khouja et al. 2000. The values of D_{ij} , c_{ij} , h_{ij} and s_{ij} for the test problem are randomly generated from uniform distribution on the ranges [100, 100 000], [1, 3], [0.5, 5.0] and [0.2, 3.0] respectively. Four different values of $I \times J$ (10, 20, 30 and 50) and four values of S (5, 10, 15 and 20) are considered.

The values of parameters for the GA operation are set: probability of crossover 0.6, the probability of mutation denoted P_m , $P_m=1/$ (string length of chromosome), population size 10 for $I \times J=10$ and 20, and size 20 for $I \times J=30$ and 50, elite=1. The above values of the parameters were selected by the best performance from testing the problems of the GA algorithm. For fair comparison, the termination condition of GA is to stop computing after the number of G generations, where $G=MSA \text{ solutions}/GA \text{ Population}$, or when no improved solution is obtained in 50 generations. The values of parameter for the MSA operation are set as follows: $\tau_{init} = 150$, $\alpha = 0.85 + 0.05 \cdot random$, $\tau_{stop} = 1 \cdot e - 4$ for $I \times J=10$ and 20, and $\tau_{stop} = 1 \cdot e - 6$ for $I \times J=30$ and 50.

For each combination of $I \times J$ and S , 100 problems were generated and solved by using the GA and MSA for a total 1600 problems. The simulation results are summarized in Tables 2. In Table 2, the label of ' C_{MSA} better' means that the solution of objective function C_T minimized by MSA is better than by GA, and the label of ' C_{MSA} better or equal' means that the solution of objective function C_T minimized by MSA is better than or is equal to GA. The percentage of all test problems of ' C_{MSA} better' is 55% and ' C_{MSA} better or equal' is 84%. The maximum saving cost in the problem of Test 7 reaches 1.71 % of the total cost. The average of maximum saving cost is 0.60 %. For the large size problem ($I \times J=30$ and 50), the performance of solutions quality with the MSA is much better than with the GA. As shown in Table 2, for $I \times J=30$, ' C_{MSA} better' is 72% for $S=5$, 83% for $S=10$, 85% for $S=15$ and 81% for $S=20$. For $I \times J=50$, ' C_{MSA} better' is 91% for $S=5$, 94% for $S=10$, 96% for $S=15$ and 97% for $S=20$. And comparing the CPU running time, the average CPU time for each problem with MSA is 0.700 seconds and with GA it is 12.913 seconds. The average CPU time with GA can be improved 92.44% by the proposed MSA. For the large size problem ($I \times J=30$ and 50), the average CPU time with GA can be improved 94.52%~96.58%. Eventually, MSA is superior to GA not only in the quality of solutions but also CPU running time.

6. Conclusions

In this paper, we consider a multi-product multi-retailer supply and inventory system and propose MSA to directly use the decision variable vector of K_{ij} as the presentation to replace the genes K_{ij} for genetic algorithm to solve these problems. The major advantages of MSA are easy to implement and the representation need not to be encoded or decoded. This MSA method shortens the CPU running time which is important from a practical point of view. The numerical example presents that the MSA is feasible, the optimal solution is found and the system with joint supply can save the total costs comparing the policy with independent supply. From simulation and results show that the MSA outperformed GA not only reducing CPU running time but also improving the quality of the solutions. Especially for solving the large size ($I \times J=30$ and 50) problems, the MSA method is more efficient than GA method. The MSA method can aids supplier to plan the delivery scheduling and save the total costs. Finally, we would like to remark that the multi-product multi-retailer supply and inventory system model may be further researched to handle constrained problem.

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Table 1. Optimal solution of K_{ij} and supply scheduling

j	i	Products	D_{ij}	K_{ij}	Supply scheduling											
					1	2	3	4	5	6	7	8	9	10	11	12
1	1	2"	100000	1	■	■	■	■	■	■	■	■	■	■	■	■
	2	3"	50000	1	■	■	■	■	■	■	■	■	■	■	■	■
	3	4"	4000	2	■		■		■		■		■		■	
	4	6"	1800	3	■			■			■			■		
	5	8"	6000	1	■	■	■	■	■	■	■	■	■	■	■	■
2	1	2"	4000	3	■			■			■			■		
	2	3"	3000	3	■			■			■			■		
	3	4"	4000	2	■		■		■		■		■		■	
	4	6"	5000	2	■		■		■		■		■		■	
	5	8"	3000	2	■		■		■		■		■		■	
3	1	2"	4000	3	■			■			■			■		
	2	3"	3000	3	■			■			■			■		
	3	4"	1000	4	■				■				■			
	4	6"	2000	3	■			■			■			■		
	5	8"	1500	2	■		■		■		■		■		■	
4	1	2"	2000	4	■				■				■			
	2	3"	1800	3	■			■			■			■		
	3	4"	1200	4	■				■				■			
	4	6"	800	4	■				■				■			
	5	8"	200	6	■						■					

Table 2. Comparison between MSA and GA solution for total costs and CPU time

Test	$I \times J$	S	C_{MSA} better (%)	C_{MSA} better or equal (%)	Max. Cost improved (%)	Aver. Cost improved (%)	Average CPU time (sec)		
							SA	GA	Improved %
1	10	5	10	88	0.38	0.00	0.506	3.661	86.21
2		10	14	91	0.36	0.00	0.527	3.893	86.52
3		15	20	93	0.35	0.01	0.508	3.795	86.64
4		20	12	97	97	0.44	0.02	0.490	3.661
5	20	5	32	74	0.42	0.01	0.573	7.327	92.23
6		10	44	84	0.16	0.02	0.598	7.782	92.3
7		15	59	88	1.71	0.04	0.581	7.560	92.32
8		20	53	86	86	0.38	0.02	0.587	7.625
9	30	5	72	78	0.84	0.03	0.773	14.043	94.52
10		10	83	92	0.80	0.04	0.790	14.043	94.56
11		15	85	90	0.74	0.03	0.779	14.312	94.67
12		20	81	86	86	0.49	0.07	0.786	14.501
13	50	5	91	91	1.01	0.11	0.900	25.220	96.44
14		10	94	94	0.53	0.13	0.919	25.898	96.57
15		15	96	96	0.83	0.13	0.935	26.360	96.52
16		20	97	97	0.70	0.16	0.955	26.927	96.58
Average			55	84	0.60	0.04	0.700	12.913	92.44

§ ‘ C_{MSA} better(or equal)’ means that comparing the effectiveness of the solution , the results of percentage by MSA algorithm is better (or equal) than GA method.

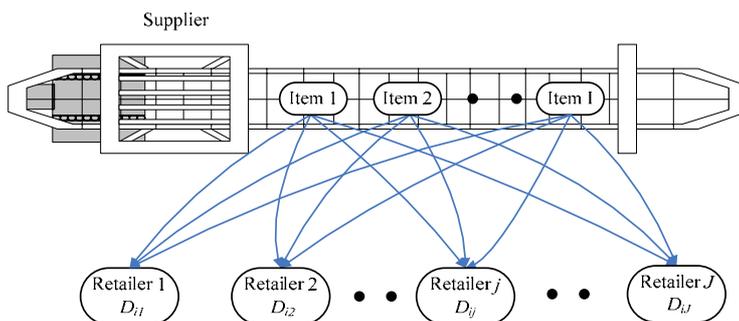


Figure 1. A network of jointed supply distribution system

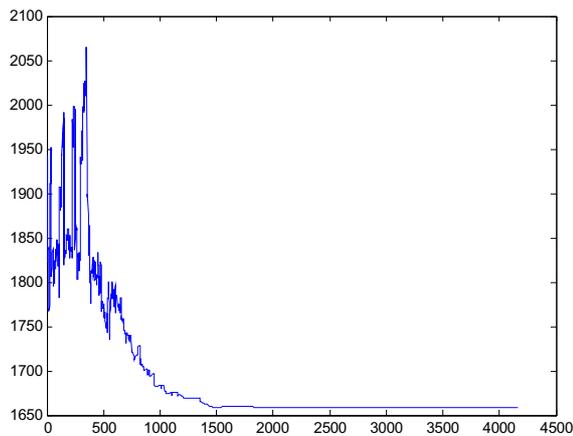


Figure 2. The convergence diagram of MSA method



Recreational Demand in Bird Sanctuary: The Case of Kapar Bird Sanctuary, Kelang, Malaysia

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Abstract

This study investigates the willingness to pay (WTP) for recreational resources at Kapar Bird Sanctuary (KBS), Kelang, Malaysia. The relevant values were estimated by utilizing dichotomous choice form of contingent valuation method (CVM). The logit models were used to analyze the data collected. Open-ended elicitation questions were used to induce respondents to state their maximum WTP, and the OLS model was employed to determine the WTP values. For the purpose of this study, a total 220 respondents were interviewed and asked their WTP for the conservation of KPS as an excitement place for recreational site. The findings of the study showed that the mean willingness to pay ranges from RM12.06 to RM60.94. This study implies that non-use value should be considered in policy making associated with recreational resources. The findings of this study are important in assists policy maker in management and development of recreational sites in Malaysia.

Keywords: Economic valuation, Contingent valuation, Willingness to pay, Bird sanctuary, Recreation, Bird watching, Shorebirds

1. Introduction

In general, there are eight broad Migratory Bird Flyways in the world. One of these is Asia Australian Flyway. Birds in their flight path from northern to southern hemispheres (at the East Asia Australian Flyway) pass through Malaysia (Anon, 2005 and Boere *et al.*, 2006). Hence, Malaysia becomes a conducive stop over area because it has a tropical climate and the west coast of Peninsular Malaysia is protected from strong winds and wave erosion (Jasmi, 2003). These allow Malaysia to be a bird watching haven and thus, bird watching activity is available throughout the year.

Wildlife such as birds is an environmental good which is unique and non-renewable. The importance of conserving and protecting the wildlife and habitat can be viewed from the following perspectives: they are non-renewable resources

which from common properties of all people including the generation yet to come. Also, their contributions to the human welfare extend to the local, national and global levels such as creating opportunities for recreation, leisure and education. Expenditure by visitors on wildlife will create linkages and multiple effects to the economy.

In addition, bird sanctuaries have ecological, economic and aesthetic effects. The benefits of having wild bird sanctuaries include providing environment for healthy living, controlling the population of harmless insects, pollinating flowers and disseminating seeds, and providing early warning of impending disasters to humans (Anon, 2005). However, Ahmad (2004) indicates that, wildlife activities normally bring long-term benefits and there might be economic impacts in the near future. Human activities if done in excess, may threaten and destroy landscapes and cultures, as well as cause instability in the ecological system.

Birds are examples of goods that lack value in the market and generally their value to the society is unmeasured. Nevertheless, a bird sanctuary is an important habitat to support the bird population. At present, users lack the incentive to reveal the benefits they obtain from their visits to the sanctuary because there are currently no limitations to the access and no entrance fee being charged. Furthermore, because the benefits are measured in qualitative form, like social benefits, the benefits of the bird sanctuary are usually underestimated. Thus, there is no motive to protect the sanctuary. Perhaps economic valuation is one way that these areas may be properly valued in monetary units.

The objective of the study is to estimate the economic benefits of bird watching activities in KBS and to determine the factors that influence users' willingness to pay for bird watching activities. This paper is organized into five sections. Section one is the introduction to the study, followed by section two which describes the concept of natural capital and economic valuation. Section three explains the methodology and source of data used in the study. Empirical results are presented in section four while the last section offers some discussion and concluding comments with regard to non-market valuation work in Malaysia.

2. Natural Capital, Economic Value and Economic Valuation

Ecosystem services such as the production of oxygen, water filter, erosion preventer and other providers are produced by mineral, plant, and animal formation of the Earth's biosphere which is called natural capital. Now, environmental resources which are part of natural capital are added to production factors. They have important roles on economic development and have been known as great economic assets (Barbier, 2005). The basic relationship among natural, physical and human capital, and economic system (human welfare) is depicted in Figure 1.

Direct contribution for instance physical capitals (K_p) include all touchable factors used in production directly such as investment goods, tools, equipments, and machinery, also indirectly such as other physical components of cultural heritage and fine architecture. Natural capitals (K_p) are direct inputs into production such as material and energy that also acts as a sink for waste emissions from the economic process. Climate regulation, watershed protection, and wetland are samples from variety of ecological services provided by natural capitals to sustain production that are essential for supporting life. In addition, aesthetically pleasing natural landscapes are essential. Advanced production process and research and development activities lead to technical innovation that for these human skills are essential, and increase in the overall stock of human knowledge related to increase in human capital (K_H) to seek at the environment which has a basic and essential role in protecting human welfare. To ensure that future welfare is not worsened by natural capital depletion today, the natural capital sources be used widely. The various economic value that arise by current natural ecosystem needs to be examined in order to justify the conservation or protection of the natural resources, and as a result measure, multiple benefits, or values generated by most natural ecosystem.

Insert Figure 1 about here

The economic value associated with activities at the bird sanctuaries like conservation or recreation can be examined in the form of use and nonuse values (see Figure 2). Use value includes non consumptive use value such as sightseeing, bird watching, photographing, and education. The effects of birds on ecology may include being enemies of many insects, pollinators of flowers, and disseminators of seeds. These can be referred to as indirect use value which are unmeasured by conventional market mechanisms. Furthermore, bird sanctuaries have other values, for instance, option value which refers to an option of utilizing in the future. In this case, it consists of two -maintaining the sanctuaries for future generation is referred to as procedure bequest, while the existence value for the present generation is referred to as procuring the existence.

Insert Figure 2 about here

There are several techniques for measuring environmental and resource values. The respondent's willingness to pay could be elicited by using a survey in order to drive this value (Tietenberg, 2000). The contingent valuation method directly asks an individual, through a questionnaire survey about her/his willingness to pay (Hodkinson, 2004). Willingness to pay (WTP) or willingness to accept (WTA) is to value impacts of the changes in the provision (either quantity and/ or quality) of environmental goods. Both of them are in monetary terms (for instance, \$ per person, or \$ per household). To date, contingent valuation method has been the most widely used technique. This is probably due

to its ability to estimate all types of values in particular non-use value of environmental goods and services. There have been hundreds of contingent valuation applications worldwide (Jamal and Shahariah, 2003).

Open-ended questions, bidding games and dichotomous choice questions are the main elicitation formats. Dichotomous choice, among other formats for contingent valuation study, is the most recommended because of its ability to match the way consumers make choices in the market place. Also, the format improves the reliability of responses (Kanninen, 1993; Jamal and Mohd Shahwahid, 1999).

3. Methodology

3.1 Location of study

This study was conducted in Kapar Bird Sanctuary, Kelang. Kapar Power Station (KPS) or Sultan Salahuddin Abdul Aziz power station is located about 56Km west of Kuala Lumpur, on the west coast of peninsular Malaysia facing the straits of Malacca. It is one of the most important sites for the migratory shorebirds due to presence of the ash ponds produced from the coal fired during the generation of electricity. The ash pond is located about 5Km away from the power generating plants of the station. It covers about 300ha, and has been able to draw migratory shore birds by the hundreds.

Although, in the initial grand design of the power station, the sanctuary was never a part of the purpose but three years after the power station was built, since 1988, more than 60 species of migratory birds have been spotted roosting and resting at the ash ponds. Some of these migrant birds fly more than 24,000 km, from as far as Siberia to Australia, to this ash pond annually. In migratory season from September to March and April, species such as sand plovers, curlews, godwits, common shanks and terns are seen by the thousands (Pingsu, 2005). Also in this accidental sanctuary, threatened species take refuge such as the Nordmann's shank, Asia Dowitcher and far Eastern curlew. In addition, about 30 species of between 5000 and 10000 birds are regularly supported at the ash ponds during migratory and non-breeding seasons (Pingsu, 2005). With this in mind, the researcher chose the KBS because it is one of the many flyways around the world, and the only site in Malaysia along the East Asian- Australasian flyway.

3.2 Survey Procedure

According to the survey objectives and by reviewing the previous studies, an initial questionnaire was prepared. Two pretests were conducted; subsequently a seven-page questionnaire was developed. The questionnaire was divided into four sections which began with an introduction and explanation of purpose of the survey. The first section comprised of questions on people's attitudes and purpose of visit. The second section was an outline of the scenario and market definition of WTP for area protection and recreation with questions that valued the respondents' WTP; the third section was on their reasons for payment; the fourth section consists of questions on the socio-economic background of respondents including education level, income, occupation, age and so on.

In this survey, dichotomous choice and open-ended elicitation formats were combined. The payment vehicle was a donation, in terms of WTP questions that asked if respondents were willing to donate into a bird conservation trust fund each year. In order to motivate the respondents to state their true WTP, the combined elicitation format was used, as is recommended in CVM practices by Tolley and Fabian, (1998) and Puan Chong *et al.*, (2004).

Four sets of the amount was used in this survey : (5, 10, 1), (10, 15, 5), (15,20,10), (20,30,15) where the first element of set (X) correspond to the initial bid, the second element (Y) to the higher bid, and the third element (Z) to the lower bid. The questionnaire was translated into two versions (Malaysia and English) to be chosen by respondents.

This survey was carried out from December 2007 to June 2008 using face to face interviews. On site visitors were conveniently chosen during the period of survey at the KBS, with a sample size of 220 visitors. The survey was carried out on different days and times of visit to ensure that respondents would be selected during high visitation and low visitation times. In developing countries, most contingent valuation studies have relied on this direct approach (FAO, 2000). Furthermore, this procedure has several positive benefits and is more effective than mailed questionnaire and telephone surveys in these countries (Hadker *et al.*, 1997 and Bateman *et al.*, 2002).

Based on the type of answers, the rate of different WTP responses were obtained which included positive and negative (protest and zero) responses. In the initial stage of model estimation, in order to avoid a discrete lump of probability at zero WTP so that a continuous logistic curve could be obtained, all invalid WTP responses were excluded (Macmilian *et al.*, 2001).

3.3 Estimating Procedure

The general function of WTP for estimating the value for conservation of KBS is expressed in relation to the vector of independent variables as follows:

$$WTP = f(X_i) \quad [1]$$

where, X_i is a vector of independent variables represented by a range of socioeconomic variables of the respondents consisting of age, education, income level and so on. This survey, involved two types of models. Logistic regression models were formulated to closely correspond to WTP by encountering individual's referendum bid given as one of the independent variables. The model was chosen because of its ability to deal with a dichotomous dependent variable. The form of model takes as follows:

$$P_i = \left(E(Y_i = \frac{1}{X_i}) \right) = \frac{1}{1 + \exp^{-(\alpha + \beta_1 \text{BID} + \beta_i X_i + \varepsilon_i)}} \quad [2]$$

where, P_i is a probability that $Y_i = 1$ (yes response), BID_i is the amount of bid offered, X_i is a vector of independent variables and i is index of observation while α , β_1 and β_i are an intercept and a vector of coefficients to be estimated corresponding to a logistic distribution and ε_i is a random error that follows the normal distribution with mean zero and common variance δ^2 . By considering the odd ratio and taking a natural logarithm of the above equation,

$$L_i = \ln \left(\frac{P_i}{1 - P_i} \right) = \alpha + \beta_1 \text{BID} + \beta_i X_i + \varepsilon_i \quad [3]$$

where, L_i which is called logit is the log of the odd ratio and in both independent variable and parameters is linear. The maximum likelihood is the estimation method. Interpretation of each coefficient is stated as the change in the log odds associated with a one unit change in the independent variable; and coefficients are consistent.

The logistic model used in the survey followed closely that of Hanemann's (1984) and also binary logit regression was employed similar to the approach in Leong et al (2004) for analyzing the relevant data. This is a reasonable and widely applied approach for describing binary response (Bateman et al., 2000; Jakobsson and Dragun, 2001). An individual would derive utility from two things, i.e. environmental quality of KBS and money income. Based on elicitation method used, positive valid WTP responses were analyzed. By using maximum WTP figures (open-ended WTP question) as dependent variable against other independent variables, a linear model (OLS) was employed.

$$\text{WTP}_i = \alpha + \beta_i X_i + \varepsilon_i \quad [4]$$

where, X_i is a vector of independent variables, and ε_i is an error term that is assumed to be normally distributed with mean zero and common variance σ^2 , i.e. $\varepsilon_i \sim N(0, \sigma^2)$. The estimation of mean and median WTP for the logit models by using the estimated coefficients from each of the three models was done as in the following (Hanemann et al., 1991; Anon, 1999):

$$\text{Mean WTP} = \frac{\ln \left(1 + e^{\hat{\alpha} + \hat{\beta}_i \bar{X}_i} \right)}{-\hat{\beta}_1} \quad [5]$$

$$\text{Median WTP} = \frac{\hat{\alpha} + \hat{\beta}_i \bar{X}_i}{-\hat{\beta}_1} \quad [6]$$

where, $\hat{\beta}_1$ is the coefficient estimate on the bid amount. It is necessary to note that the sign of $\hat{\beta}_1$ is expected to be negative because the bid amount is entered in the database with a positive sign. $\hat{\alpha}$, $\hat{\beta}_i$ are the sum of the estimated intercept plus the product of the other coefficient multiplied by the mean of the respective explanatory variables \bar{X}_i . In order to improve the adaptation of the model to data, other variables are included in the model. In obtaining the mean WTP, open-ended questions were inserted into the OLS model to determine the average levels of the socio-economic and other independent variables.

4. Results and discussion

4.1 Profile of Respondents

Useable WTP response rate should be differentiated from the original responses in order to include only actual positive responses for the regression models and the analysis. From the total 220 questionnaires, 192 responses or 87.27% response rate were accepted and used for data analysis. The result of the socio-economic profile of respondents revealed the mean age of 30 years with an average income of RM 1,840 monthly (Table 1). Respondents' occupation indicates that the majority 25.50 % were professional and technician workers; a high percentage (35.40%) had university

education. Also 65.10% of visitors had visited more than once and about 55.20% of visitors knew KBS is one of the famous places for bird watching.

As it is customary in most CVM studies (Mitchell and Carson, 1989), and based on the criteria, the respondents who stated they hold true value for the conservation and recreation programs were used in the WTP analysis with 192 respondents from 220 of the total sample was selected. Therefore, those respondents who were willing to pay for general but not specifically for conservation or recreation programs (40.62%) were excluded from WTP analysis. While other responses comprised of protest bids (3.65%) and non-response.

Insert Table 1 about here

4.2 Estimation of WTP

Variables were included in the basic models to explain the WTP (as economic theory would suggest them to be important). Also the same variables were used in other similar surveys. By using all the independent variables including initial, lower and higher bid assigned as presented in Table 2, the logistics and linear models were estimated.

In general, whether WTP is affected by the variables as suggested by economic theory and whether the signs of the coefficients of the variables are consistent with a priori expectation, the validity of the results of a contingent valuation survey can be ascertained. The results of the estimated models illustrated that near consistencies occurred in terms of the anticipated signs of coefficients (except INC and EDU in few of models).

In the models involving all variables, it was suspected that the differences or inconsistencies in terms of anticipated signs and significance of some coefficient might have arisen due to the correlation within the set of independent variables. Therefore, correlation with AGE, EDU, VISIT and INC was identified at the 1% level (between income and age was higher than the others), by which the initial results obtained could be explained. The results of the selected variables in Table 2 were further confirmed because after removal of the variables, all variables in the models influencing the probability of accepting the bid were in line with the priori expectations.

Insert Table 2 about here

The results of the linear model estimates are presented in Table 2 and 3. All the variables in this model including VISIT, EDU, INC, and FAM that respectively measured number of visits, education level, monthly income and familiarity with the site were in line with anticipated signs in all models. This means that respondents with higher income and education level (as noted by INC, EDU) would be willing to pay more. Also this would lead to the support of the contingent valuation scenario with higher WTP if an increase in terms of the number of visits (VISIT) and to know this site is famous for bird watching (FAM) occurred.

In order to create a series of useful variables, the potential explanatory variables were added and removed considering the correlation between variables. Based on the results in the following Table 3, explanatory variables supporting the conventional theory and including variables which measured number of visits (VISIT), income (INC) and familiarity of site (FAM) are all in the expected direction with WTP responses.

Insert Table 3 about here

Based on the sign given, respondents who visited the area frequently are more likely to pay because the increase in the number of visits (VISIT) also increases the likelihood of accepting a given bid. This is similar to the case of familiarity of site (FAM), the respondents who know that this site is one of the famous places for bird watching are more likely to pay than those who do not know. In the case of income (INC), when monthly income (INC) of the respondents is higher, the probability of accepting a given bid increases.

As expected from the results, the coefficients for bid offered (BID) correlated negatively with the probability of acceptance. This means the amount that respondents were asked to pay was carefully considered. Also the higher the amount those respondents were asked to pay, the less likely they would pay because of the negative and statistically significant coefficients (Model 3) on the bid suggested.

Besides that, referring to the result of the selected variables in OLS model, the coefficient for age has positive relationship with the WTP. This can be the result of the fact that older visitors are generally more environmentally aware than younger generation due to their experience. Also, according to Kramer and Mercer (1997), older people may indicate intergenerational equity motive or a bequest.

Furthermore, a negative coefficient for age in the logit model indicates that the probability of accepting a bid has negative relationship with age. Jamal and Shahariah (2003) and White et al. (2001) obtained the same results. These results may protect the idea that generally, older generation is less sensitive and environmentally aware than younger people. Moreover, it may imply longer life expectancy among younger people, which means longer future non-use benefits of the area.

Proportion or percentage of the total variation in the dependent variable (WTP) explained by the independent variables (indicated by R²), is similar to other CVM studies. The low explanatory power found 25% that WTP is relatively well explained; according to Mitchell and Carson (1989), a minimum adjusted R² of 15% is considered acceptable. In addition, the overall behavior of a respondent against his or her socio-economic background, is rather indicative of the parameters of the models (Du, 1998). One of the pseudo R² introduced is count R² (number of correct predications divided to total number of observation) which almost in all of the selected estimate Logit models, was more than the initial estimate Logit models (Table 4).

Relationship between the probability of accepting the bid and the bid offered is illustrated in Figure 3. In general, as bid levels increased, the probability of acceptance decreased. This emphasizes that the amount the respondents were offered to pay was reasonably considered by them. And summary statistic of variables employed to models estimation is indicated in Table 4.

Insert Table 2 about here

4.3 Mean and Median WTP

In general, to estimate the mean and median of WTP, two approaches were employed - the nominated logistic and liner regression analysis. Mean and median WTP values were calculated from the estimated selected variables with the formula mentioned in the earlier section. The results of calculated mean and median values are illustrated in table 4, with respect to estimated procedure. Moreover, Fam presents a dummy variable for familiarity of site - when respondents know this site is one of the famous sites for birdwatching (i.e. answer is YES) equals to 1 and equals to 0 if they don't know (i.e. answer is NO). The sign of this variable in all estimated models (overall and selected variables) is consistent with the priori expectation.

Obviously, mean WTP in logit models were higher than median and when familiarity of the site is equal to zero, mean and median were less than the mean if familiarity is equal to one. The mean and median WTP estimated from logit models ranged from a minimum of -RM14.36, when higher bid was used to a maximum RM60.94. OLS estimation provides similar estimate where mean value ranges from RM14.91 to RM 18.48. The mean for willingness to pay for recreation measure is argued to be more than median for the WTP measure in this study which is similar to Nik Mustapha's (1993) finding.

Furthermore, in relation to question format, the dichotomous choice questions produced higher estimates of WTP in comparison to the open-ended WTP question; which corresponds to the result of other studies (Loomis and White, 1996; Boman and Bostedt, 1999). Although respondents were induced to state their true WTP by using the open-ended question, the WTP values obtained from open-ended question were conditional on the values obtained from the dichotomous choice question. Therefore, in terms of the consistency in the WTP values estimated from the open-ended questions, it seems that the combined form of these two formats is possible and reliable for construct validity of CVM instrument and may bring about important implications.

Insert Table 4 about here

4.4 Aggregation of WTP

To estimate the aggregate WTP of individuals, WTP obtained from analysis was employed. It should be noted however that protest bids were considered low. Therefore, these samples were assumed to be the representatives for the whole population. As the factors influencing WTP in the samples corresponded to what was expected for the population, the proportion of the sample groups can remain constant over time.

Visitors who visit the site in a particular year (actual number of visitors is not available), based on signs and observations, are supposed to be 1500. For estimation, the individual WTP obtained from the analysis was multiplied by the respective population size. For sample per year, aggregate recreation (or conservation) value or benefit of KBS ranged from RM22, 365 to RM27,510 annually. By using social discount rate of 5%, it ranges from RM0.447 million to RM0.550 million in terms of the present value (Table 5).

Insert Table 5 about here

5. Conclusion and Recommendation

The results of the study indicated that respondents have positive attitudes toward bird watching and recreational activities. Majority of the respondents stated that their purpose for visiting the site was bird watching. Contributions to conservation or recreation trust funds with an amount specified by responses were associated with their socio-economic backgrounds, i.e. Income and age. Those who visit the site frequently and have known that this site is a famous place for bird watching are more likely to pay for such recreation activities. Also, the amount of visitors' willingness to pay to conserve the bird sanctuary and the bird population are derived from the estimated models - these values ranged from RM14.91 to RM18.34 for per visit.

Although the creation of more conservational and recreational facilities attracts more visitors, it may also create problems. The management and local authority must pay attention to the fragility of the site's environment so as to make ecotourism a viable option that could benefit all stakeholders. It is suggested that the management of KPB should be separated from KPS in order to allow a scientific and effective management of the natural resources. The study shows the majority of respondents (70%) believe that the Department of Wildlife and National Parks in Malaysia should be responsible or assigned in managing the conservation or recreation activities of KBS.

Furthermore, the findings reveal that the majority of respondents (96%) believe that KBS should be maintained for birds. Therefore, considering habitat conservation and keeping aesthetic and biological aspects of the environment together, it can be retained with the use of opportunities such as good planning, good management of ecotourism and financial saving on the restoration and rehabilitation of environmental damage.

As the only site in Malaysia included in the East-Asia Australasian Flyway, KBS is an internationally well known bird watching site and one of the few premier areas for shorebird watching in peninsular Malaysia. Indeed, this perfect opportunity can provide a suitable situation to promote and educate the public about birds, their significance and site importance. Unfortunately, there is a lack of training centers at the site. Furthermore, awareness campaigns on the bird sanctuary must extend through the mass media so that future generations can be persuaded to pay for conservation and recreation at the sanctuary. KBS is valuable to both people and birds, and thus should be maintained and conserved.

Moreover, in a cost benefit analysis, opportunity expenses created by environmental sensitive areas should not be ignored. In other words, management of these areas should not only be on ecological resources but also as an economic object. Environmental valuation can be used as a result of increased public awareness on environmental quality (Jamal and Shahariah, 2003). The results obtained from the estimated economic benefits of conservation and recreation can be transferred to the similar sites in order to make policies, decisions and management. Where the national boundaries in which the ecosystem, policies and economic factors are the same, high expenditure is necessary in order to estimate such economic benefits.

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Table 1. Socioeconomic profile of Respondents

Variables	Attributes	Visitors (N=192)	
		Freq	Percentage
Gender	Male	130	67.70
	Female	62	32.30
Age	Under 20	12	6.25
	20-30	112	58.33
	31-40	39	20.31
	41-50	26	13.50
	More than 50	3	1.56
Education level	Informal education	2	1.0
	Primary school	7	3.60
	Secondary school	39	20.3
	Pre-university	22	11.5
	Diploma	54	28.1
	University degree	68	35.4
Occupation	Professional & technician	49	25.5
	Administration & management	35	18.2
	Sales	15	7.8
	Services	24	12.5
	Business	15	7.8
	Laboure	14	7.3
	Housewife	9	4.7
	Retired	4	2.1
	Student	24	12.5
	Others	3	1.6
Monthly income(RM)	Under 1,000	48	25.0
	1,000-2,000	59	30.7
	2,001-3,000	56	29.2
	3,001-4,000	25	13.0
	More than 4,000	4	2.1
Number of visit	First time visit	69	35.9
	More than one time visit	123	64.1

Table 2. Logistic and OLS models estimated with overall variables (positive WTP responses)

Variables	Regression coefficients			
	Model 1:	Model 2:	Model3:	Model 4:
	WTP _A (Logit)	WTP _B (Logit)	WTP _C (Logit)	WTP _{MAX} (OLS)
VISIT	0.487 (0.637)	1.050 (0.416)**	0.288 (0.315)	0.275 (1.108)
AGE	-0.089 (0.095)	0.066 (0.055)	0.213 (0.063)*	0.701 (0.185)*
EDU	0.102 (0.198)	-0.044 (0.102)	0.001 (0.103)	0.070 (0.411)
INC	0.000 (0.000)	0.001 (0.000)**	-0.000 (0.000)	0.001 (0.001)
FAM	1.136 (0.946)	0.990 (0.627)	0.858 (0.728)	2.634 (2.589)
INTERCEPT	2.785 (4.337)	-1.945 (2.212)	-6.951 (2.423)*	-9.630 (8.196)
BID 1	-0.214 (0.109)**			
BID 2	-0.117 (0.053)**			
BID 3	-0.046 (0.047)			
Adj R ²				0.246
Log likelihood	-17.057	-38.179	-28.301	
Pseudo R ²	0.19	0.35	0.38	
Count R ²	0.7	0.76	0.79	
n	33	99	66	99

Note: Figure in parentheses are standard error

* significance at the 1% level

** significance at the 5% level

Table 3. Logistic and OLS models estimated with selected variables (positive WTP responses)

Variables	Regression coefficients			
	Model 1:	Model 2:	Model3:	Model 4:
	WTP _A (Logit)	WTP _B (Logit)	WTP _C (Logit)	WTP _{MAX} (OLS)
VISIT	0.519(0.651)	1.046(0.388)*	0.317(0.246)	0.315(1.077)
AGE	-0.105(0.090)			0.693(0.179)*
EDU				
INC	0.0002(0.0004)	0.001(0.000)*	0.001(0.000)**	0.001(0.001)
FAM	1.216(0.935)	1.158(0.607)***	1.314(0.579)**	2.582(2.557)
INTERCEPT	4.550(2.738)***	-1.375(0.955)	-2.866(1.160)**	-8.455(4.474)***
BID 1	-0.214(0.107)**			
BID 2	-0.107(0.0511)**			
BID 3	-39.248		-0.019(0.038)	
Adj R ²				0.254
Loglikelihood	-17.192	0.38	-37.757	
Pseudo R ² -R ² _{McF}	0.18		0.17	
Count R ²	0.73	0.82	0.74	
n	33	99	66	99

Note: Figure in parentheses is standard error

* indicates statistical significance at the 1% level

** indicates statistical significance at the 5% level

*** indicates statistical significance at the 10% level

Table 4. Mean and median WTP (selected variables)

Selected variables	Model 1: WTPA		Model 2: WTPB		Model 3: WTPC		Model 4: WTP Max	
	Fam=1	Fam=0	Fam=1	Fam=0	Fam=1	Fam=0	Fam=1	Fam=0
Mean WTP	16.67	12.06	29.48	21.12	29.79	60.94	18.34	14.91
Median WTP	16.54	11.7	29.07	20.08	-14.36	41.09	N/A	N/A

N/A: not applicable

Table 5. Recreation and Conservation Values

	Visitor(N=1,500)	
	Fam =0	Fam=1
Mean WTP(RM)	14.91	18.34
Recreation value(RM)	22,365	27,510
Present value(RM) ^a	447300	550200

Note: a 5% discount rate

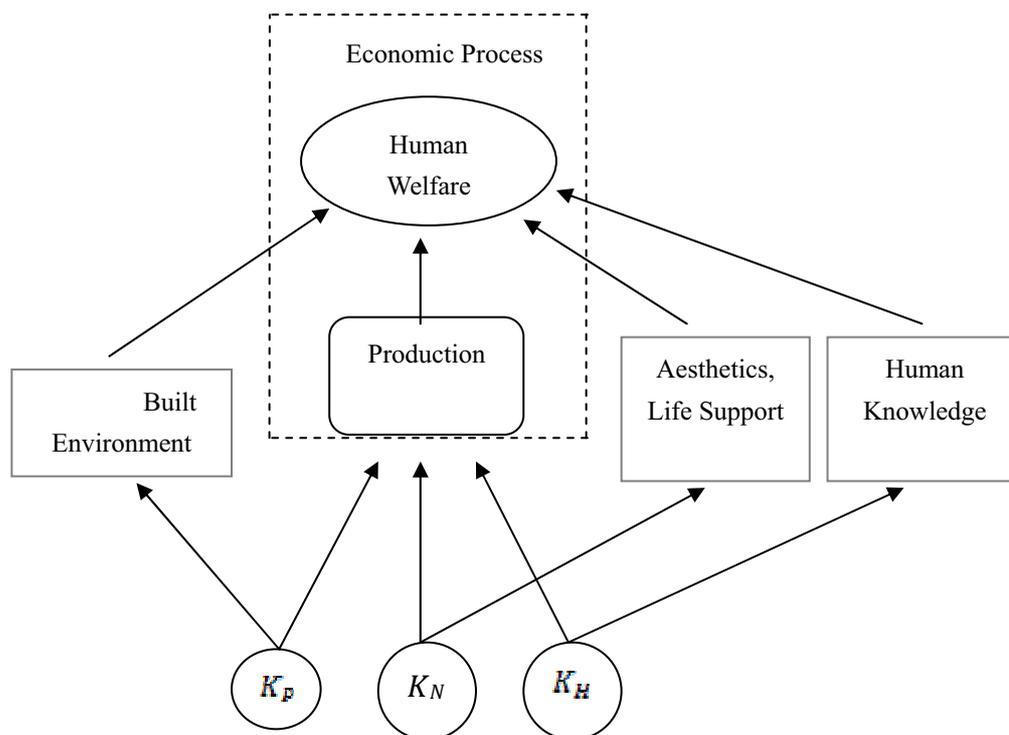


Figure 1. The Natural, Physical and Human Capital and Economic System
(Source: Pearce and Barbier, 2000)

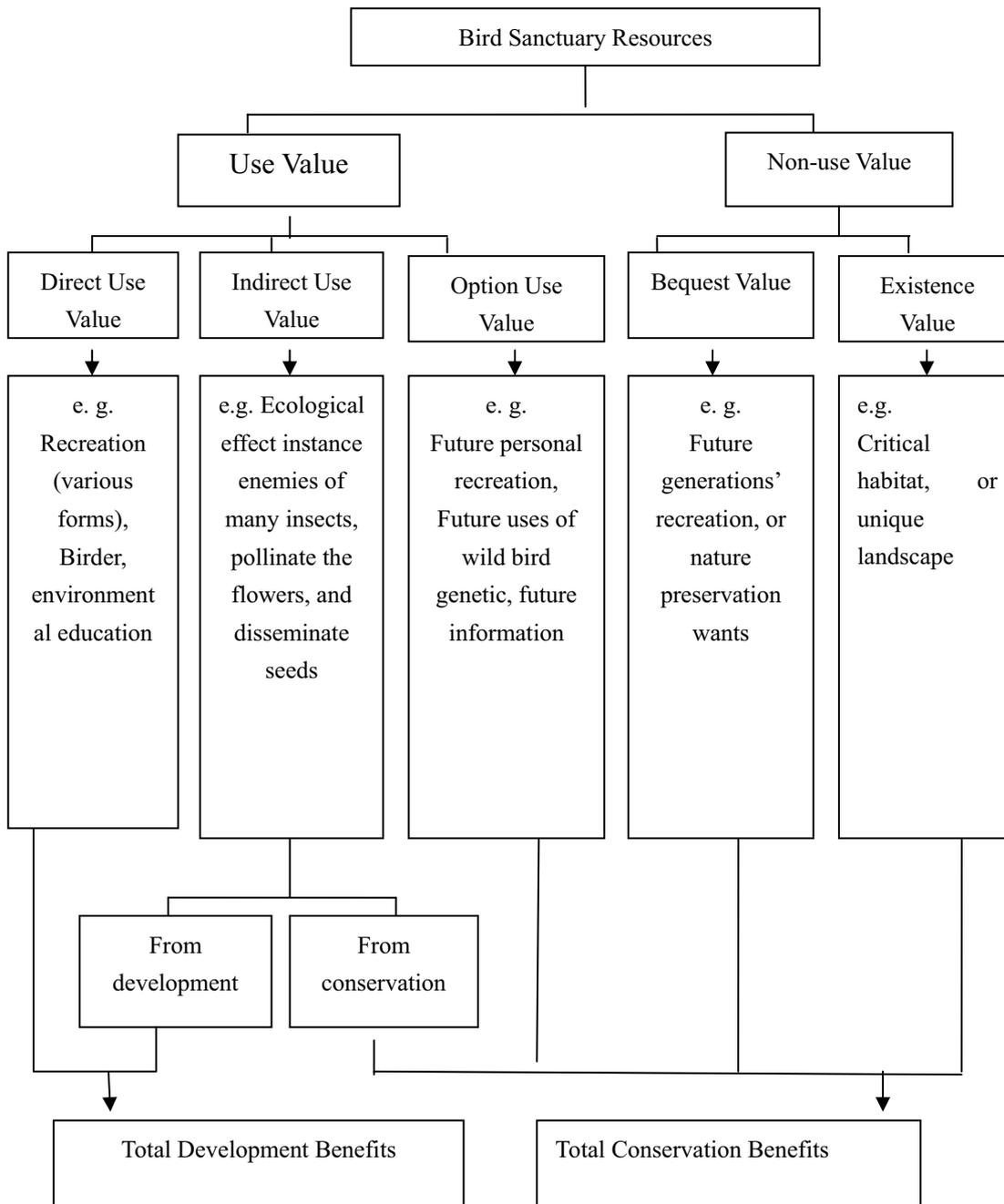


Figure 2. The Total Economic Value of Bird Sanctuary
 Source: (Adapted from Bateman and Turner, 1995).

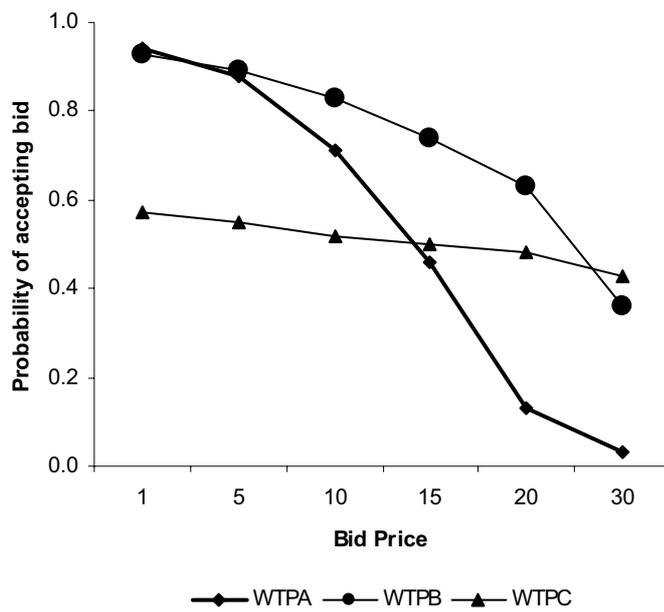


Figure 3. Cumulative Distribution Function in Dichotomous Choice Question



Empirical Analysis on the Relationship between Internationalization Degree and Operation Performance of China's Colour TV Industry

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Abstract

By building a regressive model, this paper studies the relationship between the internationalization degree and operation performance of China's five major colour TV corporations (TCL Group, Qingdao Haier, Shenzhen Konka, Hisense Electric and Sichuan Changhong). The study shows that the internationalization degree and operation performance of TCL Group, Qingdao Haier and Shenzhen Konka are negatively correlated while it is positively correlated for Hisense Electric and Sichuan Changhong, which indicates that the relationship between the internationalization degree and operation performance of China's colour TV industry is uncertain. The paper also makes in-depth analysis on reasons of the different results.

Keywords: Internationalization, Operation performance, Color TV corporation

1. Forword

Colour TV industry is one of the industries which were market-oriented rather early. Along with the process of its commercialization, internationalization has also been deepening. The modes of internationalization have been changing, from inward internationalization to outward internationalization, that is, from the introduction of advanced technologies from abroad at the end 1970s to export and direct investment abroad in recent decade. The degree of internationalization has been continuously strengthened. The issue of the relationship between the degree of internationalization and operation performance deserves concern.

1.1 Literature on Internationalization of Corporations

Currently, researches on the issue of firm's internationalization mainly focus on two aspects: One is the measurement of the degree of internationalization. American literate Danniell Sullivan put forward the measurement method of five economic indices. Finnish literate Welch built a six-dimension measurement model of internationalization process. Chinese literate Lu Tong (2007) raised the "Spider Model" and Lijian built an index system of evaluation of firm's internationalization by the introduction of fuzzy mathematics. The other is the relationship between internationalization and operation performance. There are four models built with regard to this aspect: (1) Positive linear model. This model holds that there is a positive linear relationship between the internationalization and operation performance; (2) Gains decreasing model. This model argues that at the beginning of internationalization, there is a positive impact on the operation performance which, however, will be gradually decreasing; (3) U model. This model argues that as a multinational corporation which has high level finance performance started its process of internationalization, there is a negative slope of operation performance. But with the deepening of internationalization and the accumulation of the firm's internationalization experience, its slope of operation performance will gradually be increasing; (4) Reversed U-shaped Model. This model holds that at its initial stage, internationalization positively impacts operation performance, but with its deepening and as transnational operation cost largely increases, its positive impact will be reducing and become negative at the end.

All in all, the literatures from both home and abroad mainly concentrate on the measurement of internationalization degree and general description of the relationship between internationalization and operation performance. Up to now, study specifically on the relationship between the internationalization degree and operation performance China's TV has not been found.

1.2 Research of This Paper

This paper is to make analysis on what kind of impact of the internationalization of China's TV corporations has on their operation performances and what the reasons are for these impacts in the hope of providing some insights for China's TV corporations in their internationalization.

2. Internationalization of China's Color TV Industry

Since the 1990s, along with the fierce competition in China's color TV industry, the number of color TV makers has been reduced from more than 100 corporations to about 30 corporations. The degree of concentration of the industry has largely raised. The total output of color TV in 2008 in China was 90.33 million sets, 6.5% growth over the previous year; among which 49.56 million sets were exported, an increase of 3.5% over the previous year. China's color TV industry has experienced the following three stages: (1) Technology introduction stage (from the end of 1970s to early 1990s). As color TV was a high input industry, at this stage, almost all local governments provided great support, resulting in the phenomenon of "repeated introduction", which also signified that the industry would quickly enter into an age of fierce competition; (2) Export expansion stage (from the middle of 1990s to 2003). At this stage, as domestic demand for color TV had been sufficiently met and it was hard for manufacturers to further expand their shares in domestic market, they had to turn to international market. In 2004, 30 million sets amounting to US\$3 billion of Chinese made color TV were exported. The export amount of Color TV ranked the first in terms of single item; (3) Stage of coexistence of export and overseas direct investment (after 2003). Since 2003, while expanding exports, China's color TV makers have also proactively implemented "go global" strategy. In 2003, TCL and France-based Thomson SA established a joint venture, then the largest color TV producer in the world with an annual output of 22 million sets.

3. Establishment of Regressive Model and Empirical Result

3.1 Selection of Variables

3.1.1 Measurement of Internationalization Degree

Comparing with European and American corporations, China's color TV corporations have a lower degree of internationalization or are at the initial stage of internationalization. At present, the internationalization of Chinese color TV corporations is transitioning from export-oriented to cross-board manufacture-oriented. Some corporations are building a global production network, but more corporations are still focusing on export. Therefore, we use the share of overseas (including Hongkong and Marca) sales income to the total main business income as the index measuring the degree of internationalization. The overseas sales includes both the export income and sales income directly earned by overseas factories in host countries. The source of data is from the annual financial report of the selected corporations.

3.1.2 Measurement of Operation Performance

There are various financial indices reflecting operation performance such as return on asset (ROA), ratio of profit to sales and return on equity (ROE), etc. Taking account of data availability, we use ROE to measure a firm's operation performance.

3.1.3 Controlled Variable

We use the scale of enterprise and debt ratio as the controlled variables. Large scale corporations are usually regarded as having the capability of obtaining abnormal profit ratio. Owing to market imperfectness, they are able to obtain superprofit through their advantages of monopoly. In addition, large scale corporations are capable of acquiring money at lower cost in capital market and thus operate at lower cost. Therefore, this paper use the scale of enterprise as a controlled variable which is measured here by the logarithmic of the total asset of the enterprise. Capital structure (especially liability) is regarded as one of the decisive factors that influence the performance and operation risks of corporations. Thus this paper use the ratio of liability as another controlled variable which is measured here by assets-liability ratio or ALR.

3.2 Regressive Model

We build a model as follows:

$$ROE_i = \beta_0 + \beta_1 DOI_i + \beta_2 \ln TA_i + \beta_3 ALR_i$$

Where ROE is the return to equity ratio, DOI is the degree of internationalization, TA is the scale of enterprise and ALR is assets-liability ratio.

China's color TV industry is highly concentrated with a concentration degree of 88.04% in 2007, thus we select five major color TV producers, i.e. TCL Group, Qingdao Haier, Shenzhen Konka, Hisense Electric and Sichuan Changhong to make a regressive analysis. The data of ROE, main business income, overseas (including Hongkong and Marca) sales income all come from the Stokstar website (www.stockstar.com), the stock website of Baidu (www.stock.baidu.com) and annual financial report of each corporation. The years selected for each corporation are: 2000-2008 for TCL Group,

1990-2008 for Qingdao Haier, 1991 -2008 for Shenzhen Konka, 1994 -2008 for Hisense Electric and 1994 -2008 for Sichuan Changhong.

3.3 Empirical Results

We use Eviews5.0 to make quantitative analysis on the data. For the purpose of multicollinearity, VIF is used to test the degree of the multicollinearity between variables. Through the test of multicollinearity, it is known that the VIF value of each variable is less than 6 indicating that there is no problem of multicollinearity between the data used in this paper (Note: When the VIF value of the variables is less than 1, there is no correlation between the variables. When the VIF value is more than 10, there is a high degree of relationship. Generally there is the problem of multicollinearity if the VIF value is more than 5). As to the problem of sequence correlation, this paper adopts Durbin-Watson test model. By computation, we find that the DW value of the model is within normal scope indicating there is no sequence correlation problem in this model.

Insert Table 1 here

Table 1 shows that all the values of regression coefficient β are not zero and below the significance level of 5%, t-test and F-test are all met. The computation result is: There is obvious linear relationship between the performance and degree of internationalization. The empirical result of regression model indicates that the impact of internationalization degree on performance is negative for TCL Group, Qingdao Haier and Shenzhen Kangjia while it is positive for Hisense Electric and Sichuan Changhong.

4. Analysis on the Empirical Results

In 2003, TCL and Thomson SA signed an agreement, establishing the world largest color TV joint venture. The cross boarder M&A made TCL a large multinational corporation. It was a worldwide resources integration which was supposed to be favorable to bring more advantage of scale. Although TC made remarkable achievements within a short period, with its operation platform extending globally, it failed, however, to deal with realistic problems with regard to efficiently integrating the quickly expanded corporation, controlling cost, optimizing technical and marketing channel advantages, etc. In 2004, while the sales of TCL reached 4.028 million yuan, an increase of 42.57% than the previous year, its net profit fell sharply by 57.03%. Thus, although TCL has greatly improved its degree of internationalization, its operation performance was not satisfactor. We are of the view that the obvious negative correlation between TCL's internationalization and operation performance is largely due to the failure in its overseas M&A which resulted from various causes such as insufficient investigation and analysis at the early stage of M&A, risks being undervalued and negligences of culture integration and so on.

Qingdao Haier is a corporation whose internationalization has been remarkable. However, the problem of low profit ratio has occurred in recent years. In fact, international production is only part of Haier's route of internationalization, the other part is its export. To be sure, its export price is rather lower. Therefore, the higher level of internationalization has not brought about higher economic benefit accordingly.

The internationalization degree of Shenzhen Kongka has been remaining higher. But its operation performance has not been satisfactory. In 2005, its main business income and net profit reduced by 18.92% and 17.33% respectively. Internationalization has been the focus of color TV industry. Shenzhen Kongka, however, made several mistakes in this respect. At the beginning, Shenzhen Kongka's internationalization was by the way of establishing overseas subsidiaries. But owing to fierce market competition and lackness of experience and talented people, its overseas subsidiaries suffered great losses and many of them were closed. Our empirical result reflects the impact of its internationalization degree on operation performance to some extent.

The regression analysis of this paper indicates that there is positive correlation between internationalization degree and operation performance for Hisense Electric and Sichuan Changhong. However in terms of the degree of internationalization, these two corporations differ: the former has first grown steadily and then declined sharply. The positive correlation illustrates that Hisense Electric's internationalization is rather successful. The following may be some of the reasons: (1) Clear overseas development strategy. *Hisense Strategy Plan 2000-2005* drafted specific strategy plan for its internationalization; (2) Practical overseas development strategy. Comparing with most multinational corporations, Hisense Electric is only a small one. Owing to this fact, it didn't run the risk of investing abroad. Instead, it started with foreign trade. On the basis of obtaining sufficient market information, it then considered foreign investment; (3) Establish technology innovation system to cultivate core international competitiveness. For Sichuan Changhong, the study of this paper only reflects the relationship between its internationalization and operation performance to some extent: Firstly, it is hard to say that its internationalization is successful. Actually there are drawbacks in its internationalization model. Since 2000, under market pressure, Sichuan Changhong has quickened its pace of internationalization. In the process of corporation with APEX, the account receivable from APEX reached an amount as high as US\$467.5 million; secondly, after the sharp decline of its internationalization degree, Sichuan Changhong has been obtaining its profit from domestic market and it takes lead in terms of domestic market share,

which implies that its improvement in operation performance largely originates from its domestic profit growth.

Insert Table 2 here

Insert Figure 1 here

One of the important financial indexes in measuring the successfulness of corporations' internationalization is that the ratio of overseas income to total income is over 20%. Figure 1 shows that since 2003 when TCL acquired the color TV business of Thomson SA and became the largest colour TV producer in the world, its overseas income has accounted for half of its main business income; In 2005, Qingdao Haier implemented a five-year plan of "three one thirds" (one third of its product domestically made and domestically sole, one third domestically made and overseas sold, one third locally made locally sold). Its degree of internationalization has remained at around 20%. The DOIs of Shenzhen Kangka and Hisense Electric have been relatively constant, except great growth in 2004 and sharp drop in 2007 and 2008. Sichuan Changhong's ratio of overseas main business income to total main business income has kept a rather high level with an exception of sharp drop in 2005.

To sum up, at the initial stage of internationalization, the overseas income of China's color TV corporations have grown quite quickly. But as later starter of multinational operation, under the condition of lower degree of internationalization, the impact of internationalization degree on the whole operation performance of corporations is uncertain.

5. Conclusion

This paper selected the relatively highly commercialized and internationalized color TV industry as study object and explored the correlation between the internationalization degree and operation business of China's five major manufacturers of color TV, i.e. TCL Group, Qingdao Haier, Shenzhen Kongka, Hisense Electric and Sichuan Changhong. The result of the research indicates that the impact of internationalization degree on operation performance of China's color TV corporations is uncertain.

There are some limitations in this study which is also the orientation of future study: Firstly, considering data availability as well as the present situation of internationalization of Chinese corporations, the share of overseas sales and export amount in the total main business income is used to indicate the degree of internationalization. With the development of internationalization of Chinese corporations, more comprehensive index may be better to indicate the degree of internationalization; Secondly, the data used in this study are from 1990 to 2008. More ideal approach should be: start from the year when export first took place and make comparative analysis of each phase. But as the data of export are not required in corporations' annual financial report, it is difficult to obtain these data. Thirdly, this paper selected the corporations which have high market shares. Although the results are somewhat representative, it should still be cautious when the results are adopted in the whole industry.

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Table 1. Regression results

	TCL Group		Qingdao Haier		Shenzhen Kangjia		Hisense Electric		Sichuan Changhong	
	β	t	β	t	β	t	β	t	β	t
DOI	-0.71 92	-0.75 81	-0.30 38	-0.9 679	-0.3422	-0.629 8	1.1957	1.6942	0.6069	1.12 84
lnTA	14.22 77	0.458 1	0.188 7	0.13 25	-13.544 8	-3.822 7	-13.065 6	-1.9986	-20.37 59	-2.49 75
ALR	-3.74 77	-1.53 97	-0.18 09	-1.5 724	1.3764	2.784 2	-0.5113	-1.3717	0.9030	1.89 62
F	4.3974		6.3882		5.1742		5.3138		4.5832	
VIF	4.3854		4.6323		2.5606		4.6803		2.3376	
DW	2.2057		0.3323		2.0428		1.7874		1.8100	

Table 2. Comparison of DOI between China's five major color TV corporations

	TCL Group	Qingdao Haier	Shenzhen Kangka	Hisense Electric	Sichuan Changhong
1990		2.01			
1991		9.51	7.27		
1992		13.60	0.01		
1993		11.38	8.76		
1994		16.92	12.66	3.79	30.65
1995		15.09	14.13	5.03	28.24
1996		11.35	14.11	9.32	28.42
1997		9.38	13.72	9.16	21.07
1998		10.47	10.85	8.34	36.01
1999		12.98	9.95	7.11	36.72
2000	8.58	12.44	8.88	5.37	37.92
2001	13.32	5.75	13.66	5.91	34.82
2002	12.66	12.28	9.55	5.16	44.03
2003	11.76	14.40	9.19	10.59	35.65
2004	39.66	16.94	17.44	14.98	25.14
2005	53.45	23.72	23.52	17.02	14.97
2006	53.49	22.76	30.57	18.27	13.65
2007	42.60	20.85	18.79	14.71	11.48
2008	43.41	16.87	24.98	18.31	13.39

Source: Calculation based on the annual financial report of each corporation.

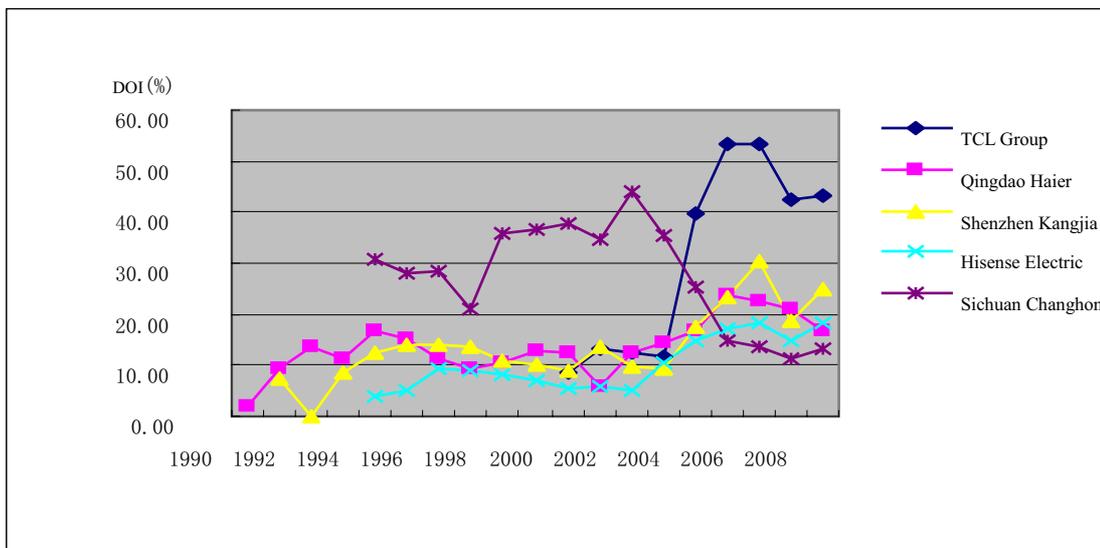


Figure 1. Comparison of DOI between China's Five Major Color TV Coporations



Impacts of Law of People's Republic of China on Employment Contracts on Colleges and Universities' Personnel Employment System and Countermeasures

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Abstract

Law of People's Republic of China on Employment Contracts generates significant impacts on colleges and universities' personnel labor relationship pattern, personnel labor relationship management mode, labor relationship parties' rights and obligations. How to make best use of Law of People's Republic of China on Employment Contracts to improve the human resource management level, avoid labor-capital conflicts, and build harmonious and stable employment relationship has turn into a new project in front of colleges and universities. This paper probes into the adaptability of Law of People's Republic of China on Employment Contracts and the impacts on employment, and measures for perfecting the employment system in colleges and universities.

Keywords: Law of People's Republic of China on Employment Contracts, Colleges and Universities, Personnel employment system, Impacts

Law of People's Republic of China on Employment Contracts that takes effects in January 2008 is a new important law protecting laborers' benefits after the Labor Law of People's Republic of China. It offers legal basis for colleges and universities regulating the employment management. At present, colleges and universities have three types of employees. The first type is the employee who signs an employment contract in compilation. The second type is the employee who gets annual pay or signs a personnel agent contract. His or her personnel files are collected by local talents center. The third type is hired by labor dispatching. To analyze issues, such as whom the Law of People's Republic of China on Employment Contracts is right for, what impacts are on colleges and universities' personnel employment system, and how colleges and universities response to, can help colleges and universities to perfect the personnel employment system based on self development strategy.

1. The adaptability of Law of People's Republic of China on Employment Contracts in Colleges and Universities

Under present legal system in China, whether the Law of People's Republic of China on Employment Contracts is right for colleges and universities should be identified by two points. Firstly, identify the nature of colleges and universities, private or state-owned. Secondly, identify the role of employee, in- compilation or out-of-compilation. In specific, private colleges and universities are non-enterprises. All employees, including teachers and assistants, are regulated by Law of People's Republic of China on Employment Contracts. Public colleges and universities are institutions. In-compilation employees sign "employment contracts", what are not regulated by Law of People's Republic of China on Employment Contracts. Out-of-compilation employees and dispatching workers sign "labor contracts", what are regulated by Law of People's Republic of China on Employment Contracts. In 2002, China starts to reform institutions' personnel system and applies the employment system. For institutions that adopt the employment system, all in-compilation employees sign "employment contracts" instead of "labor contracts". It belongs to the scope of personnel management. As employees dispute with institutions, it follows the procedures for personnel disputes, which are different from labor disputes. Out- of-compilation employees sign "labor contracts". It belongs to the labor employment scope. As there are disputes, it adopts the procedures for labor disputes. Therefore, as for state-owned colleges and universities that apply the employment system, the out-of-compilation employees and dispatching workers are regulated by Law of People's Republic of China on Employment Contracts. The in-compilation employees are not. Relevant regulations about employment contracts are different from articles in Law of People's Republic of China on Employment Contracts. For in-compilation employees in institutions, only several issues can follow the articles in Law of People's Republic of China on Employment Contracts.

2. The impacts of Law of People's Republic of China on Employment Contracts on Colleges and Universities' Employment

2.1 The Employment Cost Will Rise.

(1) Laborers have more rights and employment costs are rising.

Firstly, Law of People's Republic of China on Employment Contracts regulates that all regulations concerning laborers' interests (including salaries, holidays, labor disciplines, social welfares, and other management rules) need to negotiate with the labor union or representatives, which enlarges the right of labor union, employee representative conference, and laborers in the process of forming regulations, standardizing the procedures for employers constituting and changing regulations. It means regulations are set by both parties instead of one, what can benefit laborers in a sense. As a result, the employment cost will rise.

Secondly, Law of People's Republic of China on Employment Contracts gives laborers the right of "terminating the contract at any time" and the right of "getting compensation". If the employer fails to pay the social insurance premiums for the employee in accordance with the law or has rules and regulations that violate laws or regulations, thereby harming the employee's rights and interests, a employee may terminate his employment contract at any time. And the employee can get the severance pay from the employer. Before the validity of Law of People's Republic of China on Employment Contracts, in order to decrease employment costs, some colleges and universities, especially the logistics may fail to pay the social insurance premiums for the casual workers. Apparently, to pay the social insurance premiums can increase the employment costs to a great degree.

(2) Increasing costs for recruitment, development, and quit.

Law of People's Republic of China on Employment Contracts sets strict rules for probation period and contract term. It enlarges laborers' right of quit. It protects laborers after unemployment. It increases severance pay for laborers in ending of employment contract. These rules force colleges and universities to reduce employment costs caused by unnecessary flow of out-of-compilation workers by applying strict recruitment. However, it may make the recruitment more difficult and lead to higher recruitment cost.

Before the validity of Law of People's Republic of China on Employment Contracts, the employer can ask the employee to sign an agreement on the term of service if the employer supports the employee with funds in training. If the employee breaches the agreement, he must pay higher compensation for the employer. After the validity of Law of People's Republic of China on Employment Contracts, if the employee breaches the agreement on the term of service, he shall pay liquidated damages to the employer as agreed. The measure of the liquidated damages may not exceed the training expenses paid by the employer. The liquidated damages that the employer requires the employee to pay may not exceed the portion of the training expenses allocable to the unperformed portion of the term of service. The decrease of compensation increases the employer's risk of offering trainings for the employee, which may add more costs for human resource development.

Before the validity of Law of People's Republic of China on Employment Contracts, as the fixed-term contract ends, if the employer does not sign a new contract with the employee, it is not necessary for the employer paying compensations for the employee. After the validity of Law of People's Republic of China on Employment Contracts, as the fixed-term contract ends, if the employer does not sign a new contract with the employee, the employer must pay compensation for the employee. Therefore, the compensation increases the cost of employee quit for the employer.

2.2 Colleges and Universities Face More Difficulties in Employment.

Law of People's Republic of China on Employment Contracts regards the laborer as the weak party in the employment contract. It offers protection for laborers as much as possible in detail. It increases difficulties for colleges and universities in employment. For example, Law of People's Republic of China on Employment Contracts regulates shorter probation period, which reduces the employer's chance of knowing the laborer in the probation period. The employer can not predict the development potential of laborers, which makes it more difficult for signing an agreement on the term of contract. The Law encourages to building a long-term and stable labor relationship. For open-ended employment contract, once it is signed, it can not be terminated by all means. The Law of People's Republic of China on Employment Contracts sets many conditions for terminating the fixed-term contracts, which adds difficulties in operations in a sense, increasing the employer's burden. For the employer, how to maintain the effective flow of personnel and avoid fixed labor relationship is the difficulty in front of the human resource department.

2.3 More Risks for Colleges and Universities' Employment

The Law of People's Republic of China on Employment Contracts gives more rights to the employee and more obligations to the employer, which increases colleges and universities' risks in employment. The Law of People's Republic of China on Employment Contracts reduces limits for the quit of laborer. As a result, the employee may quit at once. The Labor Dispute Mediation and Arbitration Law give more obligations to the employer. The employer should

offer necessary proofs that are useful for the solution of disputes. If not, the employer will be punished. Because the employer should pay social premiums for the employee, the employer may employ more labors whose social premiums are not paid by the employer. Besides, lots of articles make labor dispute mediation and arbitration happen frequently, such as strict probation period, can not reach the agreement of compensation as will, low conditions for signing open-ended term contracts, strict limits for the employer dismissing the employee, enlarge laborers' right of terminating the contract, dispatching laborers have the same right with formal employees, and lower fees for labor dispute mediation and arbitration. All these aspects make colleges and universities face more risks in employment.

3. Countermeasures for Perfecting Colleges and Universities' Personnel Employment System

3.1 Achieve the Scientific Management to the Right and the Responsibility of Employees and Positions

Firstly, check the validity of contracts and insure the legal effect of contract. Law of People's Republic of China on Employment Contracts sets compulsory regulations on the item of employment contract, and it adds some new regulations on the right and the obligation of the employer and the employee. If the contract is short of some legal items, or some items conflict with articles in Law of People's Republic of China on Employment Contracts, the contract may be invalid or partly invalid. Secondly, check the fulfillment of the contract and insure the complete fulfillment of the contract. Colleges and universities should check the fulfillment of the contract periodically, including the college or the university and the employee. If one party breaches the contract, the party must take relevant legal responsibility.

3.2 Perfect Regulations and Reduce Costs for Illegal Activities

Colleges and universities should make up internal regulations, which can insure the normal operation and serve as important basis for prevent and solving labor disputes. Colleges and universities can use legal and effective regulations to enhance the personnel employment management. For example, according to the Article 39 in Law of People's Republic of China on Employment Contracts, the employer may terminate an employment contract if the employee materially breaches the employer's rules and regulations or commits serious dereliction of duty or practices graft, causing substantial damage to the employer. But the law does not make regulations on what is "materially breach" or "commits serious dereliction of duty or practices graft", which turns into the space for the internal regulations and rules. For these issues, the employer can make it clear in the internal regulations. Once the employee breaches these rules, the employer can terminate the contract legally. Law of People's Republic of China on Employment Contracts sets higher standards for internal regulations. The contents should be legal and the process should be standardized, including necessary procedures.

3.3 Emphasize on Procedures and Improve the Consciousness of Proof

All departments of colleges and universities, especially the office of law affairs and the department of human resource should build a consciousness of proof in daily management. Pay attention to the differences of natural facts and legal facts. Relevant department must pay attention to collecting and keeping file proofs in recruiting, punishing, terminating, or ending employment contracts. Once there is labor dispute, colleges and universities can protect self interests to a great degree. For example, in making up regulations and rules, colleges and universities should keep proofs for legal procedures, such as meeting records and process of discussions. Besides, colleges and universities should collect proofs of informing procedures, including notices and work manuals. As punishing employees or terminating employment contracts, colleges and universities must keep proofs for verifying the just of activities. Even at the probation period, the employer should make performance test carefully, which can serve as the powerful proofs for terminating employment contracts at the probation period. All these points mean that the human resource department in colleges and universities must performance carefully, and emphasizes on the completeness and continuousness of files.

3.4 Try New Employment Mode and Decrease Colleges and Universities' Employment Risks

Except normal employment contracts, Law of People's Republic of China on Employment Contracts includes articles concerning part-time labor and placement, which gives more choices for the employer in employment mode. Colleges and universities can try to adopt a new employment mode, optimizing the internal employee structure, such as "outsourcing services, part-time labor, and placement". By this way, it can actualize efficiency and effectiveness. These modes are especially right for the logistics in colleges and universities.

3.5 Build an Effective Dispute-Response Mechanism

The perfect contracts and regulations can not stop labor disputes completely. In order to response to disputes effectively and solve disputes in time, colleges and universities should pay attention to two issues. Firstly, all punishments and terminations of contracts should be verified with right procedures, powerful proofs, and normal reasons. Secondly, choose the way for solving disputes rationally. According to the nature of disputes and relevant conditions, solve the disputes by negotiations, considering the costs. The third-party mediation, arbitration, or suits are all choices for solving the labor disputes.

3.6 Improve the Labor Union'S Responsibilities

To protect employees' legal rights is the fundamental responsibility of labor union. The PRC Labor Union Law, Law of People's Republic of China on Employment Contracts, and relevant regulations make clear requirements for colleges and universities' labor union protecting employees' legal rights. In addition, Law of People's Republic of China on Employment Contracts, as the special law regulating employment contracts, makes it clearer for the responsibilities of labor union in colleges and universities. After the issue of Law of People's Republic of China on Employment Contracts, although the labor union in colleges and universities does not take part in the construction of "three-party coordination mechanism" directly, it participates in the coordination of colleges and universities' personnel department and relevant departments. The labor union is responsible for helping and directing employees to sign employment contracts. It should pay attention to the fulfillment of employment contracts. By building a collective negotiation mechanism, the labor union can protect employees' legal rights. In one word, the labor union must work legally. In fact, the work of labor union concerns many fields, including the sign, the fulfillment, the change, the termination, and the ending, and the check on employments. Therefore, the labor union should improve itself in the fields of coordination, and participation.

The popularization and globalization of high education ask colleges and universities to meet the development trend in personnel management. For the innovation of personnel management, colleges and universities should take the impacts of Law of People's Republic of China on Employment Contracts into consideration, enhance the position management and take employees' interests and the improvement of management performance as the core, which can help to achieve the win-win goal of ensuring the education quality of colleges and universities and improving the education efficiency.

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Relationship between Customer Relation Management Performance and E-Banking Adoption: A Look at Malaysian Banking Industry

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Abstract

This study seeks to identify the relationship between CRM performance and e-banking adoption. CRM performance is the process of value creation which results into the customer behavior intention (retain, repurchase, positive word of mouth), customer satisfaction and loyalty towards the product/brand. Despite of the popular practice of CRM in various industries, and particularly in banking, there is still lack of empirical studies, investigating to what extent the CRM performance influences on e-banking adoption. Hypothesized relationships were tested using survey responses from a sample of 307 lecturers at three public universities located in the northern states of Malaysia. The results which were compared with earlier findings illustrated that CRM performance does offer a positive influence on e-banking adoption and implications for further research were also being discussed.

Keywords: Customer relationship, Management performance, E-Banking, Adoption

1. Introduction

Customer Relationship Management (CRM) is a comprehensive strategy and process of acquiring, retaining and partnering with customers to create superior values for the company and customer (Parvatiyar and Sheth, 2001). Hence, the performance of CRM is defined as the success of creating values for customers through organizations in the objective of increasing the retention, repurchase and word of mouth in order to achieve improvements on relationship qualities. Although CRM has become the in-thing of marketing strategies nowadays, it is unfortunate that many people are still confused about the actual domain of CRM which perceives customer and service providers the act as major players. It is very important to measure the performance of CRM in any organization. Previous researchers believed that CRM performance should be measured ultimately in terms of customer behaviors since they are the underlying sources of current customer values within a firm. Researchers also believed that CRM has the potential to increase future revenue streams associated with them and to those prospective customers (Wang et. al., 2004). Their argument was supported by Grant (1995) who said that the fundamental of CRM is to ensure steady streams of revenue and

maximizations of customer lifetime value or customer equity, which in this case – customer behaviors become strategically significant (Grant & Schkesinger, 1995).

Based on such literature, Kim et al., (2004) proposed that CRM performance evaluation metrics are related to customer relationship strength, sales effectiveness, and marketing efficiency. All the metrics are from the organizational aspect of performance. However, as required by this study, the concept of CRM performance will be based on the customer behaviors since they are the underlying sources of value within a firm. Customer retention, repurchase decision and word of mouth will be chosen as the main indicators for CRM performance, as proposed by Wang et al. (2004).

The consequences of customer relationship management performance (CRM) are the area of studies that generate much interest. To date, the primary focus of research has centered on the impact of customer relationship performance from the perspective of organizations and customers' behavior. From the organization part, previous studies found out that customer relationship management can improve customer data and develop customer-centric (Seeman and O'Hara, 2006; Bose, 2002; Tan et al., 2002; Wells et al., 1999; Berger and Bechwati, 2000; Mithas et al., 2005; Kim et al., 2003). CRM has revealed many aspects that closely resemble the TQM approach since the core focus is on customer, participation and teamwork and also continuous improvement on learning (Curry and Kklou, 2004).

In terms of improving relationships, CRM performance can create more convenience, can closer and endure relationships with vendors, and can also create non market targets and competitors with other market relationships (Gummesson, 2002). In addition, Chang et al., (2005) found out that CRM performance in electronic service can increase internal process efficiency and also improve channel managements and innovations.

From the customer behavior perspective, CRM performance can increase customer loyalty, retention and satisfaction, (Seeman and O'Hara, 2006; Berger and Bechwati, 2000; Mithas et al., 2005; Kim et al., 2003; Fitzgibbon and White; 2005; Winer, 2001). Several systematic efforts have devotedly been done to investigate the impact of customer relationship management performance towards marketing performance (Blattberg et al., 2001; Rust et al., 2000); which can be in the form of customer behavior (Wang et al., 2004). Therefore, it is imperative to investigate the consequences of CRM performance from customer behavior perspectives, since they are the ones who have direct experiences when dealing with the services offered. Due to this, previous studies have validated the success of CRM performance measurement from customer behavior perspectives which is based on satisfaction, brand loyalty; repurchase intention and word of mouth (Wang et al., 2004). Because of this, the present research has chosen to practice the technology of electronic banking adoption in the goal of presenting customer behaviors in order for them to support the services based on their satisfaction, loyalty towards the brand, word of mouth and re-usage intention towards it. In other words, this research has chosen the usage of electronic technology by bank customers as the consequences of CRM performance.

Electronic banking adoption is referred to the variety of electronic banking service usages such as ATM machines, Internet banking, telephone banking and also phone banking services which are developed by certain banks. Rexha et al., (2003) had investigated on the impact of relational plan on the adoption of electronic banking. Respondents were individuals from selected firms including accountants, financial managers, chief financial officers, financial controllers, and financial directors, as they represent key informants in company-bank dealings. They found out that customer satisfaction with banks only affected through indirect adoption of electronic banking. They also argued that the experience of electronic tool usages, obstacles of machine availabilities, convenient services and friendly interface, openness, security, and information updates were among the variables which influences customer decision (Rexha et al., 2003).

Other studies in Portugal, found out that electronic banking customer satisfactions depend fully upon performances on the channel being used. Besides that, customer characteristics and the type of financial operations are also identified as important factors, influencing the process of acceptance (Ptricio L., Fisk R.P. and Cunha, T.F., 2003). In a survey of among more than 2,000 customers of an Austrian online banking, a study was conducted to gain important insights into how customers maintain their trust and loyalty through online banking business. The empirical survey by Floh and Treiblmaier (2006) identified that trust and satisfaction are important antecedents of customer loyalty towards electronic banking services. According to Griffin J (1995), loyalty is geared more on behavior and when a customer is loyal, he or she exhibits purchase behavior. However, in an e-service scenario, loyalty towards services is enough to be defined as an electronic technology adoption in electronic banking services.

Similar to this, Methlie and Nysveen (1999) investigated on the implementation of customer retention strategies from a bank in Norway. Customer satisfaction was found to have the most significant impact on retention and followed by brand reputation, while switching costs and search costs, although significant, had the most minor explanatory power. Their findings indicated that the adoption behavior or loyalties on online banking environment were similar to those in the physical market-place. This study also proves that customer satisfaction which represents CRM performances are very important attributes for e-banking adoption. Moreover, in a study by Sathye (1999) he had practically investigated the adoption of Internet banking by using through Australian consumers himself. The purpose was to analyze the factors affecting the adoption of internet banking by Australian consumers. The samples for their surveys were drawn mostly

from individual residents and business firms from Australia. Their findings also showed security concerns and lack of awareness about Internet banking while the benefits of it appeared to be some of the obstacles to the adoption of Internet banking in Australia. If we compare this finding with the concept of customer satisfaction, it shows that security and benefit issues are very important factors in order to achieve full satisfaction from customers. Customers tend to be less satisfied if such services appear to have less security and benefits to them. This situation indirectly gives a negative impact on the practice of e-service adoption.

Past research suggested that customer behavior in adopting electronic banking should consider other possible factors derived from literature. This review shows the possibilities of proposing CRM performances as the preceding factors for e-banking adoption behavior among banking customers. On this reason, e-banking adoption was chosen as the prime result of CRM performances in this research. Therefore, the main objective of this paper is to investigate the relationship between CRM performance and e-banking adoption.

2. Methodology

2.1 Research framework

The framework for this empirical research is illustrated in Figure 1.

2.2 Sampling design and sample selection

The population of this study is the users of Electronic Banking. Samples in this study are lecturers from three public universities in the northern states of Malaysia; Past research proved that the major users of electronic banking are graduates, holding an executive post and professionals (83%) (Ndubisi & Sinti, 2006). Hence, the reason why lectures were chosen as the main population was because that they were the most suitable groups to be categorized as high income groups, professionals, and all of them were university graduates. The sampling was done using stratified proportionate sampling according to university number of lecturers. A total of 307 set of questionnaires were returned and analyzed.

2.3 CRM model selection

The dimension for customer relationship management in this research was adopted from Wang et al., (2004). This factor was measured by nine items using five self-rating items on a five-point Likert scale. Out of nine items, three items come from behavior-based CRM performance, three from brand loyalty and three from customer satisfaction. Technology adoption measurement by Karahanaa, Straub and Chervany (1999) was also adapted to measure electronic banking adoption. This factor was measured by six items using five self-rating items on a five-point Likert scale. Out of six items, two items came from intention to regularly usage of e-banking and continuous use the services, four items from their experience of service usages such as ATMs, Telephone Banking, Mobile Banking and Internet Banking.

3. Results and Discussion

3.1 Reliability test and KMO

The factor analysis conducted on electronic banking adoption shows the Kaiser-Meyer-Okin value of 0.68, exceeding the recommended value of 0.5 (Hair et al., 1998) or above 0.6 (Pallant, 2001) and Barlett's test of sphericity was highly significant ($p=0.00$), supporting the factorability of the correlation matrix. As shown in Table 2, the factor loadings are between 0.65 and 0.85. The factor analysis conducted on customer relationship management performance shows the Kaiser-Meyer-Okin value of 0.925, exceeding the recommended value of 0.5 (Hair et al., 1998) or above 0.6 (Pallant, 2001) and the Barlett's test of sphericity was highly significant ($p=0.00$), supporting the factorability of the correlation matrix.

As shown in Table 3, the factor loadings are between 0.73 and 0.88. Reliability (Cronbach's Alpha) for this factor is 0.94, which indicates high reliability. Item-to-total correlations revealed that removal of any item would not increase the alpha beyond 0.94, thus supporting the inclusion of all scale items

With the F value of 298.396 ($p<.005$), indicates that customer relationship management performance significantly influences electronic banking adoption. Furthermore, the model is rather strong with customer relationship management performance explaining 49.5 percent of the variation in electronic banking adoption. We also noted that the score for β is .70, which eventually confirms that customer relationship management performance provides high contributions to the dependent variables. Regression analysis undertaken revealed that customer relationship management performance was positively related to the electronic banking adoption. This indicates that customer relationship management performance has high explanatory power to predict electronic banking adoption. These findings are consistent with many research findings from the past, for example online and telephone banking intention (Karjuluoto et al. 2002; Pikkaranen et al. 2004) and internet banking intention (Suh & Han, 2002; Wang et al. 2003; and Sohail & Shanmugam, 2003).

4. Conclusion

It can be concluded that CRM performance direct an influence on e-banking adoption. In other words, it is confirmed that customer satisfaction, brand loyalty, retention intention and word of mouth has a significant impact on e-banking adoption since they are the main dimensions of customer relationship management performance. As such, it appears that banking institutions should strive to improve their customer relationship management performance in their efforts to attain higher electronic banking adoption by their customers.

These findings provide additional evidence to the growing body of knowledge concerning the importance of achieving the higher levels of customer relationship management performance. Apart from theoretical contribution, this study also contributes to the methodological perspective. To date, most literature on customer relationship management performance has focused on customer behavior-based performance since they are underlying sources of current customer values within a firm (Jensen, 2001; Day, 1994; Slater, 1997; Wang et al., 2004). Wang et al (2004) had developed a measurement for customer relationship management performance that only consists of tangible behavior based performances. Regarding to their suggestion, to add intangible behavior as on of the dimension in the measurement, this research has confirmed that intangible behavior based performance also successfully measures customer relationship management performance. This dimension will give an extra contribution for the methodology so that banks would have to practically ensure that electronic banking services offered to customers must have the ability to satisfy their customers to ensure repeat usages and loyalty among them. Banks have to be more aggressive in promoting their electronic services instead of conducting campaigns, or seminars on customer service programs besides launching international linkages on banking services.

The moves towards international banking linkages will allow customers to withdraw and deposit money throughout world wide locations. Somehow, due to this limit, future research must investigate other factors as the predictors for CRM performance instead of focusing on its consequences. This study examines electronic banking customers at a single period of time. A longitudinal study would therefore provide a significant approach in testing the outcomes of this study. Further research should consider both quantitative and qualitative techniques in order to understand the phenomena. By considering a qualitative type of research such as field interviews, we can really deeply understand the customer emotion when dealing with online technology.

This study examines electronic banking customers at a single period of time. A longitudinal study would therefore provide a significant approach in testing the outcomes of this study. Future researches have to explore the specific categories of electronic banking rather than the general concept of electronic banking. Besides that, future research can consider a model testing in distinguishing online context services instead of electronic banking to see if there is any difference on the research result.

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Table 1. Measurement Characteristic of e-Banking Business

Variables	Scale(Items)	Previous Reliability Test	Sources
Electronic banking adoption: <i>The behaviors of customers to regularly and continuity of the usage of ATMs, Internet Banking, Telephone banking or mobile banking services.</i>	Likert scale 1-5 (6 items)	0.92	Karahanaa, et al., (1999)
Customer Relationship Management performance: <i>Behavior-based CRM Performance, Brand loyalty, Customer Satisfaction</i>	Likert scale 1-5 (9 items)	0.84- 0.92	Wang (2004)

Table 2. Factor Loading, KMO and Bartlett's Test for E-Banking Adoption

	Extraction
I am regularly use electronic banking	.858
The use of electronic banking is my preference	.868
My electronic banking experience is on Self Service Terminals (<i>ATM Machines – money transfers/ withdrawal, Cash Deposit Machines, Check Deposit Machines, or Passbook Update/Bank statement printing</i>)	.699
My electronic banking experience is on Telephone banking (balance enquiries, fund transfers, bill payments, fixed deposit placements, Loan or credit card payments and check clearing status)	.719
My electronic banking experience is on Mobile banking (<i>SMS</i> - balance enquiries, fund transfers, bill payments, fixed deposit placements, Loan or credit card payments and check clearing status)	.721
My electronic banking experience is on Internet banking (banking transaction through <i>online services</i> - online payment, online trading etc.)	.657

Extraction Method: Principal Component Analysis.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy. Bartlett's Test of Sphericity	.680
Approx. Chi-Square	908.731
df	15
Sig.	.000

Table 3. Factor Loading, KMO and Bartlett's Test for Customer Relationship Management Performance

Items	Factor Loading
Even with more choices, I will not choose other bank electronic banking services	0.883
The electronic banking services offering of this bank is my first choice.	
I would like to keep close relationship for a longer period with my electronic banking services	0.856
Taking my experience with banks, I am satisfied with this electronic banking services offers	0.849
I would like to continue this electronic banking services with the bank	0.848
The electronic banking services offerings always meet the desirable level.	0.843
The electronic banking services offerings always meet my expectation.	0.836
I would like to recommend this electronic banking services offerings to others.	0.835
I feel I am loyal to this electronic banking services offering of this bank	0.821
	0.729
Eigenvalue	6.26
% of variance	69.61
Kaiser-Meyer-Olkin Measures of Sampling Adequacy	0.925
Barlett's Test of Sphericity: Approx Chi-Square	2328.161
	df
	36
	Sig
	0.00

Table 4. Reliability Coefficients for the Variables in the Study

Variables	Number of Items	Reliability
Electronic banking adoption	6	0.74
Customer relationship management performance	9	0.94

Regression Analysis on the Influence of Customer Relationship Management on Electronic Banking Adoption

Table 5. The influence of Customer Relationship Management Performance on Electronic Banking Adoption

Independent Variable	B	SE B	β
CRM Performance	0.845	0.049	0.703

Note: $R^2 = 0.495$; $F = 298.396$; Sig. $F = .00$; $**P < 0.01$

B= Unstandardized coefficient beta; SEB= Standard error of regression coefficient;

B= Beta coefficient



Figure 1. Framework for the relationship between CRM Performance and E-Banking Adoption



Auditor Independence: Malaysian Accountants' Perceptions

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Abstract

Independence is the primary justification of the existence, and thus the hallmark of the auditing profession. It is recognized as the primary attribute to be maintained by auditors in all circumstances. This study attempts to explore the determinants of auditor independence as perceived by Malaysian accountants using a self-administered mail survey. It was evidenced from the survey that size of audit fees is the most important factor, followed by competition, size of audit firm, tenure, provision of management advisory service and finally audit committee. More specifically, the study indicates that (1) larger size of audit fees, (2) audit firms operating in a higher level of competitive environments, (3) smaller audit firms, (4) audit firms serving a given client over a longer duration, (5) audit firms providing MAS, and, (6) the non-existence of an audit committee, are perceived as having a higher risk of losing independence. This study provides a basis for the profession to establish policies relating to auditor independence. Also, it may assist policy makers and other relevant international accounting agencies in their attempt towards the international harmonization of auditing standards. The major contribution of this paper is that it supplies recent evidence on factors influencing auditor independence from the viewpoint of Malaysian accountants.

Keywords: Auditor independence, Malaysia, Management advisory services (MAS), Audit committee, Audit Fees, Firm size

Introduction

Media comments in the wake of Enron and other corporate scandals including WorldCom and Parmalat to name a few have ended to focus heavily on the issue of auditor independence (Raja Tun Uda, 2002). These financial scandals and corporate failures, thus, are proven to have had a detrimental effect on the public's perception of auditors. More worryingly, as been raised by O'Malley (1993), the issues related to independence are threatening the survival of accounting firms of all sizes and indeed it has the power to destroy the accounting profession as a whole. It is therefore, vital that auditors maintain their independence and ensure that they provide a high quality of auditing to ensure the credibility of financial information not only for the purpose of reducing the number of corporate scandals but most importantly the survival of their profession and the development of healthy financial and capital market (Abu Bakar, 2006).

The study aims to provide further understanding of the factors influencing auditor independence (hereafter referred to as AI) from the perspective of accountants in Malaysia. Among the significance of this study is that it provides recent input on the literature of AI. This is important since the issue of AI is ongoing and becoming more controversial nowadays, thus fresh studies on this issue should always be conducted to ensure its updated information. In addition, this article also offers important input to serve as a strong basis for the profession to establish policies relating to auditor independence, particularly in Malaysian context since empirical evidence regarding this issue have been relatively limited so much so that the accounting profession has had no choice but to rely on conjecture and assertion to establish

policy (Shockley, 1981). Providing empirical evidence from local context also can assist the policy makers and other relevant international accounting agencies in their attempt towards the international harmonization of auditing standards.

Auditor Independence

Independence has been described as “avoidance of situations which would tend to impair objectivity or permit personal bias to influence delicate judgement” (Carey et al., 1966). Auditor independence, in particular, implies “absence of influence or control in the matter of the auditor’s conduct, action and opinion” (AAA, 1973). It simply refers to the auditor’s ability to express his conclusions honestly and impartially. In discussing the foundation of the concept of auditor independence, Pany & Reckers (1983) emphasize that the concept of auditor independence is closely originated from the reason for the existence of auditing itself. According to them, the rationale for the external auditor’s work (i.e. independent audit) - indeed a primary justification for the existence of the public accounting profession - arises from the need for reliable financial information

According to the By-Law B-1.4 (1) issued by Malaysian Institute of Accountants (MIA), independence requires both (a) independence of mind and (b) independence in appearance (MIA, 2006). Independence in fact (or actual independence) can be defined as the auditor’s state of mind and his/ her ability to maintain a proper attitude in the planning of his audit program, the performance of his verification work, and the preparation of his report (Mautz & Sharaf, 1961). On the other hand, independence in appearance (or perceived independence) refers to the public’s or others’ perceptions of the auditor’s independence. To be seen to be independent, an auditor should be able to demonstrate that there is no threat to his or her independence such that an outsider would not doubt the auditor’s objectivity (Messier & Boh, 2002). This notion of independence is one of the cornerstones of auditing theory and the *sine qua non* of auditing practice (Wolnizer, 1987, as quoted in Patel & Psaros, 2000). Both actual as well as perceived auditor independence are critical elements in the maintenance of public confidence in the auditing profession (Pany & Reckers, 1980). However, for this study, we will only focus on ‘independence in appearance’, since the actual independence of an auditor is unobservable.

There have been an increasing number of studies on perceptions of auditor independence (PAI) on non Anglo-American countries. Examples are Dykxhoorn & Sinning (1981) in German, Gul (1989) in New Zealand, Gul & Tsui (1992) and Lau & Ng; (1994) in Hong Kong, Hudaib (2003) in Saudi Arabia and Alleyne et al. (2006) in Barbados to name a few. In Malaysia, to our knowledge, there are only three published studies examining the factors influencing PAI (i.e. Gul & Teoh, 1984; Teoh & Lim 1996; Abu Bakar et al. 2005). The study by Gul & Teoh (1984) investigate the effects of combined audit and management consulting services by public accounting firms on a sample of the Malaysian public comprising public accountants, bankers, managers and shareholders. They found that the expansion by audit firms into non-audit services reduced their confidence in the auditor’s independence. It was also found that shareholders believe that auditors could still remain independent if the audit firms provide non-audit services, while there are no definite conclusions for other categories of respondents.

On a separate study, Teoh & Lim (1996) investigate the effects of five selected variables on the PAI of Malaysian public and nonpublic accountants. They employ a repeated measures experimental design. Results show a large audit fee received from a single client is the most important factor leading to the impairment of PAI, followed by the provision of management consultancy services. The non-rotation of audit firms is not a dominant factor. The formation of audit committees is found to have a strong positive impact on enhancing auditor independence, while the positive impact of disclosure of non-audit fees is considerably less. The present study will complement the study by Teoh & Lim (1996) in terms of its contribution for a more recent data on perceived independence by accountants since Teoh & Lim study was done more than a decade ago.

The more recent study conducted in Malaysia is by Abu Bakar et al. (2005). This study surveyed the users of financial statements in particular 86 commercial loan officers in Malaysian-owned commercial banks using mail questionnaires. Results indicate that factors including (1) smaller audit firms, (2) audit firms operating in a higher level of competitive environments, (3) audit firms serving a given client over a longer duration, (4) larger size of audit fees, (5) audit firms providing MAS, and, (6) the non-existence of an audit committee, are perceived as having a higher risk of losing independence. Audit firm size is the most important factor, followed by tenure, competition, audit committee, MAS and size of audit fee. This present research is hoped to provide more Malaysian evidence regarding PAI, in particular from the preparer (i.e. accountants) perspective.

Determinants of Auditor Independence

The majority of empirical studies on the PAI focused upon finding the significance of the factors which potentially influence independence, and in looking whether these factors are positively or otherwise related with PAI (e.g. Pany & Reckers, 1980; Gul, 1989; Gul & Tsui, 1992). Among the factors that affect PAI that have been studied are (a) the effects of gifts (e.g. Pany & Reckers, 1980), (b) the purchase discount arrangement (e.g. Pany & Reckers, 1980), (c) the

audit-firm size (e.g. Shockley, 1981; Gul, 1989), (d) the provision of management advisory services (MAS) by the audit firm (e.g. Shockley, 1981; Knapp, 1985; Gul, 1989; Bartlett, 1993; Teoh & Lim, 1996), (e) the client's financial condition (e.g. Knapp, 1985; Gul, 1989, Gul & Tsui, 1992), (f) the nature of conflict issue (e.g. Knapp, 1985), (g) the audit firm's tenure (e.g. Shockley, 1981; Teoh & Lim, 1996), (h) the degree of competition in the audit services market (e.g. Knapp, 1985; Gul, 1989), (i) the size of the audit fees or relative client size (e.g. Gul & Tsui, 1992; Bartlett, 1993; Teoh & Lim, 1996; Pany & Reckers, 1980) and, (j) the audit committee (e.g. Gul, 1989; Teoh & Lim, 1996).

This study, however, will be focusing only on six of those factors which are deemed to be the relatively important factors in influencing PAI; (i) size of audit firm; (ii) level of competition in the audit services market; (iii) tenure of audit firms serving the needs of a given client; (iv) size of audit fees received by audit firms; (v) provision of managerial advisory services by audit firms to the audit clients; and (vi) the existence of audit committee.

Size of Audit Firm

Larger audit firms are often considered to be more able to resist pressures from management (i.e. higher auditor's independence). This is proven by almost all of the empirical studies that attempted to find the relationship between audit firm size and AI, whereby they found that there is a positive relationship between them (DeAngelo, 1981b; Shockley & Holt, 1983; Nichols & Smith, 1983; Dopuch and Simunic, 1980; McKinley et al., 1985; Shockley, 1981; Gul, 1989; Alleyne et al., 2006; Abu Bakar et al., 2005). In fact, it has been argued that certain characteristics inherent in small audit practices may increase the danger of impairment of independence, for example, the tendency toward a more personalized mode of service and close relationship with the client (Shockley, 1981). However, as pointed out by Goldman & Barlev (1974), one should not conclude that large CPA firms are immune to pressures from their clients. More to the point, the few court cases which challenge the assumption that CPA firms acted independently indicate that the use of a large CPA firm is no guarantee of its ability to resist pressures from clients, as happened with Arthur Andersen and Enron.

Level of Competition in the Audit Services Market

Competition has been identified as the most important environmental change or external factor affecting auditor independence (Shockley, 1981). Firms operating in an intensely competitive environment may have difficulty remaining independent since the client can easily obtain the services of another auditor. A number of empirical studies have proven that the high level of competition in the audit firm has resulted in less auditor independence (e.g. Shockley, 1981; Alleyne et al., 2006; Abu Bakar et al., 2005). Gul (1989), however, found the opposite. In explaining this, Gul argued that the existence of competition caused auditors to be more independent and create a favorable image in order to maintain their clientele.

Tenure of an Audit Firm Serving the Needs of a Given Client

An audit firm's tenure, which is the length of time it has been filling the audit needs of a given client, has been mentioned as having an influence on the risk of losing an auditor's independence. Most writers, who discuss the relationship between tenure and AI, support this view (e.g. Alleyne et al., 2006; Abu Bakar et al., 2005). A long association between a corporation and an accounting firm may lead to such close identification of the accounting firm with the interests of its client's management that truly independent action by the accounting firm becomes difficult (U.S. Senate, 1976). Mautz & Sharaf (1961) pointed out that complacency, lack of innovation, less rigorous audit procedures and a learned confidence in the client may arise after a long association.

The US Congressional Subcommittee on Reports, Accounting and Management (the "Metcalf Committee" [1976]) considered that the above dangers are serious enough to recommend the mandatory rotation of auditors as a possible remedy. Rotation ensures that the auditor remains independent since tenure will be limited and any vested interest will no longer be relevant (Teoh & Lim, 1996). Nevertheless, this suggestion has been opposed (e.g. Shockley 1981; DeAngelo 1981a). In Malaysia specifically, the length of audit tenure and the possible effect of switching on auditor independence is still unclear and not explicitly addresses in any of the relevant Malaysian official documents (Note 1) (Abdul Nasser et al., 2006) though in the year 2002 the Chairman of the MASB then had announced the intention of the board to make it mandatory to rotate the audit firm once every five years (The Edge, 2002). In studies conducted by Shockley (1981) and Teoh & Lim (1996) however, tenure was not found to have a significant impact on perceptions of independence.

Size of Audit Fees Received by Audit Firm (in relation to total percentage of audit revenue)

Large size of audit fees is normally associated with a higher risk of losing the auditor's independence. The IFAC's Code of Ethics for Professional Accountants (1996, para 8.7) suggest that client size (measured from size of fees) could raise doubts as to independence. In a similar development, the EFAA (October, 1998, p.4) clearly states that, 'the (total) fee from one client should not exceed a certain percentage of the total turnover of the audit firm'. In Malaysia the MIA By-Law (Section B-1.98 on Professional Independence) has emphasized that

“if the total fees (arising from assurance and non-assurance services) generated by one assurance client or its related entities exceed 15% of the firm’s total fees in each year over two consecutive financial periods, financial dependency shall be considered to exist, in which case, a self-interest threat to independence is created. In such event, the only course of action is to refuse to perform or withdraw from the assurance engagement”.

This 15% criterion has also been the level generally used by the ICAEW and Australia at which auditors have to consider their independent position.

Most empirical studies conducted on size of audit fees do not look at that factor per se; instead they inter-relate it with other factors. For example, Shockley (1982) suggests that the adverse effects of MAS, the size of the audit firm and competition on a third party’s PAI actually arise because of the linkage of these variables to audit fees. Nevertheless, there is a study that proves otherwise. For example, Gul (1991) proven that each independence-related variable namely MAS, competition and the audit firm size, affects bankers’ PAI in its own right. He also found size of audit fees to be an important determinant of bankers’ PAI. Another study related to the size of audit fees was by Pany & Reckers (1983). They noted that the large size of the client’s audit fee (measured as a percentage of office revenues to the audit firm), though do not show any significant impacts on PAI, have influenced respondents to feel less confidence in the auditor’s independence.

Management Advisory Services (MAS)

Management advisory services may include investment banking, strategic management planning, human resource planning, computer hardware and software installation, internal audit outsourcing (AICPA, 1997), risk assessment and business performance management. An extensive debate is raging in the literature about the compatibility of consulting and auditing service. In line with this, several empirical surveys were conducted in order to find how third parties, auditors and firms view this issue. The results are, however, inconclusive, suggesting that the effect of MAS on perceptions of auditor independence is complex (Goldman & Barlev, 1974; Gul, 1989; Shockley, 1982; Coreless & Parker, 1987) and other factors such as cultural differences of the subjects may also be a significant factor in the way MAS is viewed in the context of auditor independence.

Early research related to financial statement users indicated that auditor independence is negatively affected when non-audit services are performed for audit clients (e.g. Shockley, 1981; Pany & Reckers, 1983, 1984; Reckers & Stagliano, 1981; Knapp, 1985; Alleyne et al., 2006; Abu Bakar et al., 2005; Krishnan et al., 2005). They believe that these collateral services create a working relationship between the auditor and the client that is too close and that the provision of MAS negatively affected PAI.

Contrary to the above, some other studies found a positive relationship between MAS provision and PAI. They believe that MAS provision enhances the auditor’s knowledge of the client, thus increasing the auditor’s objectivity (see, for example, Goldwasser, 1999; Wallman, 1996). According to Goldman & Barlev (1974) who support this view, the addition of management services increases the power and independence of the auditors. They argued that this occurs because most consulting-type services are non-routine and because these services benefit the client firm directly. Consequently, the replacement of the consulting auditor may result in a loss of valuable advice to the firm. The bargaining position, therefore, becomes stronger; s/he is better equipped to resist interference in the performance of auditing duties and is more likely to retain independence. Finally, there are studies that have shown that the provision of MAS has no effect on PAI (e.g. McKinley et al., 1985; Coreless and Parker, 1987)

Audit Committees

An audit committee is a selected number of members of a company’s board of directors whose responsibilities include helping the auditors remain independent of management (Arens et al., 1999). For that reason, there is much support to suggest a positive relationship between audit committees and auditor independence, which means that the existence of an audit committee will enhance auditor’s independence. Teoh & Lim (1996) in their study find that the formation of audit committees has a strong positive impact on enhancing auditor independence. Similarly, Patten & Nuckols (1970), Knapp (1985) and Lau & Ng (1994) find that the existence of an audit committee increases the likelihood of bankers’ approving a loan, which is a reflection of an increased confidence in the auditor. On the contrary, Gul (1989) finds that audit committees did not significantly affect the perceptions of auditor independence.

Malaysian Accounting and Auditing Profession

Malaysian Institute of Accountants (MIA) is the authoritative body which is empowered by the Accountants Act, 1967 to regulate the practice of the profession of accountancy in Malaysia. The objectives of its regulatory role are to ensure that all members comply with professional and ethical standards in discharging their professional responsibilities and to ensure that all members exhibit the highest standards of professionalism, competency and integrity expected of the profession (MIA, 2006). The Institute has also focused on several critical areas such as regulatory changes and continuous education and training in facing global challenges. More specifically, it is actively involved in any attempt by the Malaysian Accounting Standards Board (MASB) to bring about awareness of accounting standards by

encouraging seminars and training programmes. MASB is an independent authority which develops and issues accounting and financial reporting standards established under the Financial Reporting Act 1997 (the Act). By and large, it adopts the International Accounting Standards (IAS). Moving forward, the MIA continues to keep pace with international best practices and standards such as those issued and recommended by the International Federation of Accountants (IFAC). With regards to qualification in becoming a Certified Public Accountant, the only local body in Malaysia which conducts a professional accountancy examination recognised under the Accountants Act 1967 is the MICPA (Malaysian Institute of Certified Public Accountants). With regards to size of audit firms in Malaysia, about 91.4% of Malaysian audit firms fall into the category of small firms with one to two partners. While medium size audit firms with three to eight partners constitute 7.5% of the population of audit firms, the remaining figure of 1.1% are of the large size audit firms with more than 9 partners.

Research Methodology

Research Questions

The following research questions have been developed mainly based on the development of literature on auditor independence:

Question 1: Do the accountants think that the six factors (i.e. audit firm size, competition level, tenure, size of audit fees, management advisory services and audit committee) have any influence on an auditor's independence?

Question 2: Which of the six factors (i.e. audit firm size, competition level, tenure, size of audit fees, management advisory services and audit committee) is the most important factor influencing auditor independence?

Question 3: What kinds of relationships (i.e. its direction) exist between the six factors (i.e. audit firm size, competition level, tenure, size of audit fees, management advisory services and audit committee) and the auditor's independence?

Data Collection

The subjects are accountants in Malaysia. They were selected as the sample population of this study because they could represent not only the preparers of financial statements (Jenkins & Krawczyk, 2001), but also the users (e.g. in Abdul Rahman, 2001). Accountants are professional people who have the qualification and training necessary in making informed judgements about the issue on auditor independence (Teoh & Lim, 1996). Also, they are among the sophisticated financial statement users who would understand the importance of the independent audit function. More interestingly, responses from accountants would also represent the views of the ordinary investor's group since those ordinary investors who do not have an accounting background would seek their advice for the purpose of making investment decisions (Abdul Rahman, 2001).

Data were collected using the mail survey method. This method is chosen not only because it is quick, inexpensive, efficient and accurate means of assessing information about the population (Zikmund, 2000), but most importantly due to the notion that survey is the best vehicle to measure perceptions as highlighted by Carmichael & Swieringa, (1968) in Beattie et al. (1999). In this study, since perceived independence represents opinions of people, the survey method, thus, can be considered as the most appropriate method.

The questionnaire, adapted from Abu Bakar et al. (2005) with slight modification particularly on its sequence, included two sections. First section consists of three main questions while the second question tries to elicit the respondents' demographic data including their age, gender, race, years of experience in present job as well as their level of education. Using Abu Bakar et al. (2005) questionnaire enabled us to compare our findings with their study on different subjects, i.e. commercial loan officers, who are among the users group. The first question asked the respondents whether they think each of the six factors listed has any influence on auditors' independence. To answer, respondents will have to circle either 'yes' or 'no'. However, at this point, the direction and the strength of these relationships are not explored. Next question is meant to test the strength of the relationships between the six factors and AI. It requires the respondents to assume that all the six factors have some influence on the auditor's independence. They were then asked to assign a unique number from 1 to 6 to all the six factors according to the factors' importance in influencing their PAI, with number 1 signifying the most important factor and number 6 as the least important factor. The third or last question tried to explore the direction of these relationships. It asked subjects to indicate whether they strongly agree ('1'), agree ('2'), slightly agree ('3'), neutral ('4'), slightly disagree ('5'), disagree ('6') or strongly disagree ('7') with the statements given. Each statement provides either a positive or negative relationship between the factors and auditor independence. The 7-point Likert-scale was provided based on past studies and thus for comparable purposes.

In total, 500 questionnaires were sent out. Since all practicing accountants in Malaysia must be registered as MIA members, the accountants list is extracted from the MIA Membership Directory which is kept confidential by the MIA. For that reason, researchers have less control on the selection process of respondents as this can only be done by the MIA. Researchers however have requested that MIA uses random selection and also exclude the public accountants. Accompanying each questionnaire were two letters; first is from the MIA certifying that the researchers are accounting

lecturers undertaking a research and the second from the researchers explaining the nature and purpose of the research, the respondents' role in answering the questionnaires and provides assurance of complete confidentiality. Self-addressed and post-paid envelopes were provided by the researchers to facilitate the process. No second mailing was conducted because the questionnaires were completed anonymously.

Results and Discussions

A total of 72 and 2 of completed and incomplete questionnaires were received respectively, producing usable replies of 14.4%. This response rate can be considered as acceptable since it falls between 10 and 50 per cent as suggested by Saunder et al. (2003). The respondents were a heterogeneous group with an average age of 36.7 years (standard deviation 6.9, range from 24 to 54 years) and a mean experience as accountants of 8.8 years (standard deviation 5.6, range from 1 to 22 years).

Factors Influencing Auditor Independence

Overall, all factors being tested are seen by accountants as having some kind of influence on AI, though the percentages of respondents' agreement range from 94.4 % to 70.8% (refer to Table I). This support the earlier findings by Abu Bakar et al. (2005) where they found all these six factors do have some kind of relationship with AI. While majority of the respondents (i.e. 94.4%) perceived that level of competition in the audit service market has some influence on AI, the existence of audit committee in the audit client company being least perceived as having any influence on AI with only 70.8% supporters. Other factors including (1) the audit firm size, (2) size of audit fees received by the audit firm. (3) the tenure of an audit firm serving the needs of a given client, and (4) the provision of management advisory services by an audit firm to the audit client company, all falls in between the previous two factors with 88.9%, 84.7%, 81.9% and 72.2% respectively.

“Take in Table I”

Strength of the Factors Influencing Auditor Independence

According to the ranking, the most important factor in influencing AI as perceived by the accountants is (1) the size of audit fees, followed by (2) the level of competition among audit firm, (3) the size of the audit firm, (4) the tenure of an audit firm, (5) the provision of management advisory services and finally (6) the existence of an audit committee (refer to Table II). In general, these findings do not confirm the results from earlier study conducted in Malaysia by Abu Bakar et al. (2005). Most interestingly, it completely contradicts Abu Bakar et al.'s study in the sense that in the latter study it was discovered that size of audit fees as the least important factor influencing AI, while this present study found otherwise whereby that factor is ranked the most important factor.

“Take in Table II”

In explaining this difference, one may want to relate to the fact that the MIA of which the respondents are the members, has recently introduced (in its By-Law on Professional Independence) the 15% threshold of the size of audit fees as a benchmark of independency of a particular auditor on its client. This step has perhaps increased the accountants' awareness and hence responsiveness towards this particular factor, and as reflected in this study, this factor has been perceived as a relatively crucial factor in influencing AI. It is therefore, safe to say at this point that the policy actions taken to set the maximum size of audit fees in particular have a strong (positive) consequences on the accounting profession as a whole and AI in particular. Abu Bakar et al.(2005) on the other hand, in justifying the reason that size of audit fees is relatively less important among the loan officers understandably mentioned that normally only the audit firms themselves know the size of audit fees, as a percentage of their total revenue which they receive from their clients. The loan officers themselves therefore do not have that information readily available.

On a separate note, when the ranking of importance is compared with the mode, it can be seen that both are showing almost similar results, except for the first two factors, where the modes are reflecting the factors' lesser importance.

Comparing results from Table I and Table II, there are at least for three factors of which the results are found consistent. In Table I, three factors, namely (i) tenure, (ii) provision of MAS, and (iii) existence of audit committee, are found as the factors with the relatively higher percentage of responses that mentioned they have 'no influence' on AI, with 18.1%, 27.8% and 29.2% respectively. In the same way, the respondents' views regarding those factors are reflected here in Table II when they rank those three factors as the three least important factors in affecting AI, exactly in the same order as in Table I.

One study which involved factors ranking is Shockley (1981). Shockley reports the competition variable was ranked as most important, followed by the size and MAS factors. Thus, to a certain extent, the results of this study seem consistent with Shockley's particularly in terms of the factors' sequence of importance in influencing AI.

Directions of the Factors Influencing Auditor Independence

Table III shows the frequency of occurrence and percentages for the level of agreement by accountants for each of the factors and their relationships with AI.

“Take in Table III”

“Take in Table IV”

Table IV above shows the mode (or most common response) for each question regarding the respondents' level of agreement with the statements given. The mode or the majority of the respondents *agree* that; (i) the larger the size of an audit firm and (ii) existence of an audit committee in the audit client company - the greater the auditor independence will be. The majority also *agree* that; (i) the higher the level of competition among audit firms, (ii) the longer the duration an audit firm serves an audit client, (iii) the larger the amount of audit fees paid by the audit client company to the audit firm (in relation to the total percentage of audit revenue), and (iv) the provision of management advisory services by the audit firm to the audit client company; the more likelihood that auditor's independence will be impaired. All these are parallel those findings in Abu Bakar et al.(2005). This may indicate the indifferences between the opinions of loan officers and accountants in terms of the direction of the relationship of the factors being tested and AI.

More specifically, for the firm size and audit committee factor, the mode tend to agree with the positive relationship between the factors and AI, while for the other factors, the mode tend to agree with the negative relationship between those factors and AI. Results also show that the majority neither takes the position of “strongly agree” nor “strongly disagree”. They seem to prefer choosing a more moderate position by choosing a mere agree (or disagree), or, slightly agree (or disagree). Likewise, Abu Bakar et al. (2005) showed exact similar situations.

Not only that, results from this study also show consistent results with those of Abu Bakar et al. (2005), in one additional aspect. When the modes of the two contradicting relationship/ statements are compared, we will apparently find that if the mode is to agree (or slightly agree) with one direction of the relationship, the mode of the opposite direction will be to disagree (or slightly disagree). This remains true for all of the six factors. Perhaps this reversal of answers happens because most respondents captured that the first six questions and the last six questions are dependant on each other (please bear in mind that out of the twelve questions statements given, the last six questions are stated in just the reverse manner of the first six). Thus, they tend to answer the questions in a mirror image to each other.

“Take in Table V”

The statement that has been “agreed” most by the respondents according to ranking is that; (1) ‘the higher the level of competition among audit firms, the more likelihood that the auditor's independence will be weakened’. This is then followed by the statement (2) ‘the longer the duration an audit firm serves an audit client, the more likelihood that auditors' independence will be impaired’, and (3) ‘the larger the size of audit fees paid by the audit client company to the audit firm (in relation to the total percentage of audit revenue), the more likelihood that it will weaken the auditor's independence’. After that, it is followed by another three statements which are being equally agreed by accountants. These include; (4a) ‘the larger the size of an audit firm, the greater the auditor's independence’, (4b) ‘auditor's independence will be weakened if the audit firm provides management advisory services to the audit client company’, and (4c) ‘the existence of an audit committee in the audit client company may enhance an auditor's independence’.

On the other hand, the statement that has been “disagreed” with most by the respondents, according to ranking, is; (1) ‘the smaller the size of an audit firm, the greater the auditor's independence’. This is then followed by the statement (2) ‘the shorter the duration an audit firm serves an audit client, the more likelihood that auditor's independence will be weakened’, (3) ‘the smaller the amount of audit fees paid by the audit client company to the audit firm (in relation to the total percentage of audit revenue), the more likelihood that it will weaken the auditor's independence’, (4) ‘the existence of an audit committee in the audit client company may not enhance the auditor's independence’, (5) ‘the auditor's independence will not be weakened if the audit firm provides management advisory services to the audit client company’, and finally, (6) ‘the lower the level of competition among audit firms, the more likelihood that auditor's independence will be weakened’. These results do not completely support those of Abu Bakar et al. (2005) although they both do not greatly differ.

Nevertheless, there are some aspects in which this study supports earlier studies. For example, in prior studies, there are either none or very few supporters for the positive relationship between (i) size of audit fees and (ii) tenure with AI, as well as the negative relationship between firm size and AI. Quite in line with that, in this study, it is found that these three statements obtain the relatively lowest means regarding the degree of agreement by the respondents. In other words, these statements are being disagreed with most by the respondents compared to other relationships for other factors. These two circumstances show some consistencies between this study's results with those done previously. It is, however, noted that this study marginally supports earlier studies including Abu Bakar et al. (2005) in the sense that in this study, the existence of an audit committee was not found to be greatly and positively influence AI as in the case of prior studies.

Conclusions

It is evidenced from this study that the Malaysian accountants perceived the following factors as important in influencing auditor's independence; they are, (1) size of audit fees, (2) level of competition among audit firms, (3) audit firm size, (4) tenure of an audit firm serving the needs of a given client, (5) provision of management advisory services, and finally (6) existence of an audit committee. These factors are arranged according to its degree of importance as perceived by the Malaysian accountants. The size of audit fees is considered the most important factor unlike in the same study done in Malaysia on loan officers (Abu Bakar et al., 2005) whereby that factor was considered the least important factor.

Factors including (1) the size of an audit firm and (2) the existence of an audit committee are perceived by Malaysian accountants as having positive relationship with auditor independence. In particular, accountants generally perceived that the larger the size of an audit firm, the more likely it is that it may enhance the auditor's independence. The existence of an audit committee in an audit client company is also believed to improve the external auditor's independence. For the other four factors, namely (3) the level of competition among audit firms, (4) an audit firm's tenure of service, (5) the size of audit fees, and (6) the provision of management advisory services, a negative relationship between them and auditor independence seems to gain more support from the accountants. They tend to believe that an auditor's independence is more easily impaired in four situations. Among the situations are when there is a higher level of competition among audit firms as compared to when the competition level is lower. Secondly, when there is a longer duration of service provided by the auditor for a given client as compared to when the auditor serves a given client over a shorter duration of time. Thirdly, when there is a larger size of audit fees provided by the audit client to the auditor as compared to when the auditor receives a smaller size of audit fees. Finally, when there is management advisory services (MAS) provided by the auditor to its audit client as compared to when there is no provision of MAS by the auditor to its audit client. In all these four situations, accountants believe that the auditor's independence will easily be weakened. The above findings on relationships between factors and AI basically support prior study by Abu Bakar et al. (2005) to certain extent.

The foremost limitation of the study is that it only considers each factor per se. It ignores any interaction effects which may exist between any two factors. For example, in a few of the prior studies, they find the interaction effects between (1) firm size and fees, (2) competition and tenure, (3) fees and MAS, and, (4) fees and competition. It is suggested that further studies could be undertaken by adding subjects such as investors and financial analysts. Comparisons could be made among these three groups which represents preparers (i.e. accountants) and users (i.e. investors and financial analysts).

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Note

Note 1. This includes Companies Act 1965, the Security Commission regulations, approved auditing standards, etc.

Table I. Frequency and Percentage Indicating 'Yes' and 'No' Regarding Factors Which Influence Auditors' Independence

Factors (ranking according to 'Yes')	Firm Size (2)		Competition (1)		Tenure (4)		Fees (3)		MAS (5)		Audit Committee (6)	
	Freq.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	64	88.9	68	94.4	59	81.9	61	84.7	52	72.2	51	70.8
No	8	11.1	4	5.6	13	18.1	11	15.3	20	27.8	21	29.2
Total	72	100.0	72	100.0	72	100.0	72	100.0	72	100.0	72	100.0

Table II. The importance of factors in influencing AI (1-Most important; 6-Least important): The mean and rank of factors

Factors	Mean Score	Rank	Mode
Firm Size	3.17	3	4
Competition	3.06	2	3
Tenure	3.68	4	4
Fees	2.85	1	1
MAS	3.72	5	5
Audit Committee	4.33	6	6

Table III. Level of Agreement with Positive and Negative Relationship between Each Factor and Auditor Independence: Frequency and Percentage of Occurrence of Responses

Factors	R/ship		1 Strongly Agree	2 Agree	3 Slightly Agree	4 Neutral	5 Slightly Disagree	6 Disagree	7 Strongly Disagree
Firm Size	+ve	Freq.	10	30	12	7	4	7	2
		%	13.9	41.7	16.7	9.7	5.6	9.7	2.8
	-ve	Freq.	0	6	4	10	12	29	11
		%	0	8.3	5.6	13.9	16.7	40.3	15.3
Competition Level	+ve	Freq.	3	7	7	11	19	19	6
		%	4.2	9.7	9.7	15.3	26.4	26.4	8.3
	-ve	Freq.	15	29	19	3	3	3	0
		%	20.8	40.3	26.4	4.2	4.2	4.2	0
Tenure of Services	+ve	Freq.	2	3	10	7	17	29	4
		%	2.8	4.2	13.9	9.7	23.6	40.3	5.6
	-ve	Freq.	15	31	17	2	2	5	0
		%	20.8	43.1	23.6	2.8	2.8	6.9	0
Size of Audit Fees	+ve	Freq.	1	10	7	10	9	28	7
		%	1.4	13.9	9.7	13.9	12.5	38.9	9.7
	-ve	Freq.	18	28	10	7	5	4	0
		%	25	38.9	13.9	9.7	6.9	5.6	0
Management Advisory Services	+ve	Freq.	0	11	7	15	11	20	8
		%	0	15.3	9.7	20.8	15.3	27.8	11.1
	-ve	Freq.	11	24	13	13	6	5	0
		%	15.3	33.3	18.1	18.1	8.3	6.9	0
Audit Committee	+ve	Freq.	6	31	15	7	7	4	1
		%	8.3	43.1	20.8	9.7	9.7	5.6	1.4
	-ve	Freq.	1	11	7	7	19	21	6
		%	1.4	15.3	9.7	9.7	26.4	29.2	8.3

Table IV. Level of Agreement with Positive and Negative Relationship Between Each Factor and Auditor Independence: Mode for Each Factor

Factors	Relationship	Agree/ Disagree Mode
Firm Size	Positive	2 (agree)
	Negative	6 (disagree)
Competition Level	Positive	5 (slightly disagree)
	Negative	2 (agree)
Tenure of Service	Positive	6 (disagree)
	Negative	2 (agree)
Size of Audit Fees	Positive	6 (disagree)
	Negative	2 (agree)
MAS	Positive	6 (disagree)
	Negative	2 (agree)
Audit Committee	Positive	2 (agree)
	Negative	6 (disagree)

Table V. Mean Score of the Level of Agreement for Each Factor and Its Rank (1-Strongly agree; 7-Strongly disagree)

Factors	Relationship with Auditor Independence	Mean	Rank (according to degree of agreement)
Size of Audit Firm	Positive	2.92	4
	Negative	5.21	10
Level of Competition	Positive	4.63	5
	Negative	2.43	1
Tenure of Service	Positive	4.90	9
	Negative	2.44	2
Size of Audit Fees	Positive	4.78	8
	Negative	2.51	3
Management Advisory Services	Positive	4.64	6
	Negative	2.92	4
Audit Committee	Positive	2.92	4
	Negative	4.65	7



Research on Cost Control and Management of Real Estate Project

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Abstract

This paper takes the cost control and the management of real estate project as the object in research, and analyzes and studies relevant issues. By analyzing the cost structure of real estate construction, this paper identifies problems in cost control and management of real estate construction at present. Besides, this paper puts forward measures for cost control and management of real estate construction, with the hope of offering useful ideas for this issue.

Keywords: Real estate project, Cost control, Management

Along with the fast development of China's economy, the real estate industry has achieved wonderful successes, pulling economic development significantly, and contributing a lot to China's economic development. Today, real estate construction assumes more tasks. In 2008, 3,000 billion RMB enters real estate construction. The cost control and regular management of real estate construction turns into the focus. For real estate construction projects, the investment is lasting and high. And lots of agencies, institutions, and people take a part in real estate construction projects. Therefore, the cost control and management is more complicated and has multiple levels. Once the construction cost is out of control, it will lead to a great waste and will bring about more pressures for property management in later. A nice cost control is meaningful for the whole real estate construction project. To realize better cost control and management of real estate construction is important for today's harmonious society.

1. Cost Structure of Real Estate Construction Project

The cost of real estate construction is composed of four parts.

The first part is the land cost, accounting for 30% of the total cost. It mainly refers to cost for building land, greening land, equipped facility land, and property management land.

The second part is the construction installation cost, as the main body of real estate construction cost, accounting for 20%-50% of the total cost. Among the construction installation cost, materials cost the most, accounting for 60% of construction installation cost.

The third part is the cost for equipments and machines, accounting for 1%-3% of the total cost. This part is mainly for meeting the needs of operations, management, and maintenance.

The fourth part is other cost, accounting for more than 15% of the total cost. It is difficult to control this part. It mainly includes the cost for investigation and design, the cost for project supervision, and the cost for infrastructure. In special, the management cost usually surpasses the budget, which is the largest part that is hard to control in real estate construction. The management cost is only accounting for 1% of the total cost. But the absolute amount is large. It is easy for the construction company costing more in management.

2. Problems in Cost Control and Management of Real Estate Construction

At present, serious problems exist in the cost control and management of real estate construction. For example, for some real estate construction, the design is earlier than the study of feasibility, which makes the later turn into useless. In bidding, some construction companies perform illegally, which makes the bidding fail to control project cost well. The popularization of assigned subcontracts and various subcontracts serve as potential threats for project quality. The delay for project payment, especially for workers' wages, is serious. Some projects can not manage the changes of designs. Construction companies fail to follow the designs completely, which may lead to larger costs for construction. Some construction companies emphasize on the control of quality and period but fail to control the cost. All these activities make the cost of real estate construction out of control in China, which is harmful for the sustainable and healthy development of real estate industry.

2.1 Fail to Estimate the Project Exactly

Investment estimation is performed at the very beginning, namely in the study of feasibility. Present compilation of study of feasibility is lack of details. No effective items to control the number of project. The estimation has a lower preciseness. Besides, the study of feasibility has no necessary investigation. Some potential geological disasters can not be identified effectively, which leads to the rise of costs. Although some companies make “details for implement”, the effect is poor. In order to establish the project, some companies may reduce the number of project and decrease costs.

2.2 The Compilation of Project Budget Has Poor Reliability

At the stage of design, the investigation is far from sufficient. Some fundamental materials for design are inexact. As a result, the design may be irrational and will be changed significantly in construction, which causes the poor reliability of budget.

2.3 Working Drawing Budget is Unpractical

At the working drawing design stage, compile the project budget according to the design. The working drawing budget is to calculate the cost of design. The rationality of working drawing budget is about how to organize the construction and how to reach the design requirements by what kinds of methods, plus how to arrange the construction period, and how to manage workers and machines under different seasons, according to scientific designs. All these tasks are supposed to be arranged by construction companies. For design companies, to compile the budget is unpractical.

2.4 Do not Follow Basic Construction Procedures and Can not Control Costs

For some projects, time is urgent. Therefore, the design is maybe imperfect. And the construction does not follow the basic procedures strictly. Sometimes, the study of feasibility turns into useless papers. As a result, the estimation and the budget can not control the project cost effectively.

2.5 Contract is not Managed Well, Especially for Subcontracts and External Workers

Some real estate developers neglect to manage contracts. They do not follow the terms written in contracts strictly. Besides, some developers can not calculate the cost of project quantities correctly. They are incapable of managing external workers effectively.

2.6 Irregular Management and Many Changes for Project

Real estate developers can not design properly and have to change the management methods. Or, the execution is weak. They can change the design as will. Then, the scale of project is increasing and the cost is rising.

2.7 The Financing Structure is Unreasonable and Depends on One Financing Channel too Much, Which Contributes to the Rise Of Costs

At present, the funds for real estate construction in China are mainly from domestic loans, foreign funds, self-collected by construction companies, and other sources. Although financing ways are few and some are immature, limits are more. Sometimes, funds can not arrive in time. In order to insure the process of project, the construction companies have to apply loans from banks. Therefore, a large proportion of construction funds are from banks as loans. And the credit period is long and can not match with investment return. The characteristics of real estate industry determine the lagged-behind investment return. One financing channel increases risks and costs, which leads to the accumulation of loan balance in banks, increasing construction costs and pressures for later in operation.

2.8 Cost Management is Unscientific. Lack the Idea of Cost Control. System is Imperfect. Management Cost Is High

By auditing lots of projects, we find that management is one of factors that cause overspending. Main items that cause overspending include management fees, compensation fees for removing, and supervision. Main reasons include: Lack a perfect cost control system and can not manage and control the cost systematically, which makes it hard to identify the out-of-control of cost in time. Lack the idea of cost control and the constraint mechanism. Project managers are always focusing on quality and construction period, but not cost control. The absence of system makes the expenditure more irregular. No integrated standards for management fee are effective. Workers are more than necessary in construction companies.

3. Measures for Cost Control and Management in Real Estate Construction

3.1 Build Up a Scientific Management System for Real Estate Construction and Perfect Relevant Equipped Measures

(1) The key for cost control is to build up a scientific management system, perfecting relevant equipped measures, and actualizing the separation of “investment, construction, management, and use”.

(2) Reform present construction procedures and make the construction more rational. Simplify administrative approval process and strengthen the approval system.

(3) Build and perfect the supervision of government. Impose effective supervision over real estate project’s

investigation, design, bidding, construction, and supervision. Perfect the supervision in construction.

(4) Regulate the investigation, the design, the bidding, and the construction in project. Avoid false bidding and reduce potential risks.

(5) Build a supervision system for investigation and design. Improve the effectiveness of cost control at the very beginning.

3.2 Build and Perfect the Cost Control System and Implement a Whole-Process Control Over Costs

Build and perfect the cost control system. Form an organization to control cost during the process of design, bidding, construction, management, and building. Build and perfect a cost management duty system. Build a cost control system that focuses on project managers, which can help to predict costs and make decision. Build an information management system for cost control to actualize information feedback and process. Information system can help to offer pre-warning for errors, analyzing reasons, advancing suggestions, and realizing a dynamic management of cost control. Make up relevant standards for operations. Optimize business operations. Apply leveled empowerment and management. Establish the responsibilities of positions. Build a check and incentive mechanism for cost supervision. Make up standards for cost control. Inspire workers' motives for cost management.

3.3 Emphasize on Designs, Strengthen Contract Management, Be Strict with Design Changes, and Regulate the Procedures of Changes

Design is the most important ring for cost control in real estate construction, which can directly impact the construction period and investment scale. Therefore, it is necessary to select a design company carefully, checking its quality, experience, and general competence. By following the principle of convenience, select reasonable design indexes and control construction cost. Select the scheme properly and optimize the design to decrease the investment cost. Strengthen contracts management and supervise subcontracts and external workers. Control the changes of design strictly. Build a system for changing designs. Set limits for procedures of changing.

3.4 Enlarge the Financing Channels and Optimize the Debt Structure. Decrease Financing Risks and Reduce Capital Costs

Enlarge financing channels further. Absorb more funds to participate into real estate construction. Decrease the size of loans from banks and avoid too much dependence on banks. Reduce capital costs. Construction companies should try to get fiscal low interests and official allowance. Explore new financing channels, such as assets reengineering, stock financing, issuing corporate debts, short-term financing, BOT, auction, listing in market, and absorbing foreign funds.

3.5 Control the Removing Fees

(1) The government takes a part in land expropriation and removing. The government can help to solve this most difficult issue. In perspective of costs, it is more economical than solving this issue by the construction company.

(2) Make up a system for compensation standards. The government can issue a series of standards for compensation in certain region. Then, the compensation will be fairer, which can benefit the stability of society.

(3) Ensure the compensation. At the very beginning, it is necessary to take the compensation into consideration, avoiding the misuse of compensation. Whether the compensation can reach its owner is an extremely important issue.

(4) Make the design be preciseness as much as possible. Ensure the predictability of land expropriation. Meanwhile, owners should prepare well for the construction. Shorten the time distance between design and construction. Besides, coordinate the relationship between the construction company and the local government. Deal with the illegal building properly.

(5) For land be used for certain period, the contract can restrain the construction company for the quantity, the type, and the time. Or, the construction company is responsible for the expenses of land be used for certain period. Owners can apply relevant certificates.

3.6 Control Management Costs and Reduce Expenditure

The construction company should strengthen internal control. Perfect the system. Build an effective constraint mechanism. Stop conspicuous consumption and improve the consciousness of saving. Reduce management costs.

(1) Build up the system. Strengthen the construction of financial system. Perfect the financial management rules. Make up relevant regulations for expenditure. Standardize the approval of expenditure. Establish the responsibilities of positions and work standards.

(2) Apply the budget control and execution system. Compile a management budget and follow the budget strictly. Check the costs according to financial system and the budget. Analyze and examine the expenditure indexes. Allocate the management budget among functional sectors. The later can puts forward suggestions for the use of management fees. Financial sectors should compile the plan for expenditure by balancing the management expenditure. After the

approval, all sectors can compile the month expenditure plan.

(3) Sign a target and responsibility contract for cost control. The construction company and relevant functional sectors can sign a target and responsibility contract for management cost, controlling the cost based on the contract and plan. Management expenditure should follow the approval procedures and authorities. Control the cost by plans and apply the target check system. Management expenditure should be associated with the process of construction, ensuring the normal, legal, and reasonable expenses.

4. Conclusion

The cost control and management of real estate construction is a systematic project. Its success depends on all participators' dedication. The guidance thought for cost control and management of real estate construction is in accordance with the idea of building a resource-saving society in China. This paper is supposed to exert certain effect on China's real estate construction, with the hope of benefiting the cost control and management of real estate construction in future.

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Embedded Study on the Experience Marketing from Consumers' View

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Abstract

The experience marketing breaks the “hypothesis of rational consumers” in traditional marketing, and it emphasizes consumers' participation, contact, and “emotional resonance” to fulfill and create consumers' individualization demand. In the article, the 6Es strategies of the experience marketing from consumers' view are designed to dig the route selection of the experience marketing strategy.

Keywords: Experience marketing, Analysis, Design, Route selection

1. Definition of Relative Concepts about the Experience Marketing

1.1 Experience

The experience is the individual psychological feeling of one person, and it is the nice feeling in one's consciousness when his emotion, physical force, intelligence even spirit achieve certain specialized level, and it is one person's special and instant and deep affection with high strength which can not be described in the social life over general experiences and cognitions. Therefore, the experience will not only come down to human sense, emotion, sensibility and other sensitive factors, but also come down to human knowledge, intelligence, thinking and other rational factors, and also include some activities of the body. So the experience is the nice and profound feeling generated in consumers when they participate in designing, driving, emerging and feeling the whole consumption process in the consumption situation offered by the enterprise. With the deep research about the experience marketing theory, human understandings about the concept of experience are difference with the difference of the research depths, and according to different layers, the experience can be divided into four kinds from shadow to deep, i.e. the critical experience, the full-value experience, the extra-value experience and the overflow experience.

The level model among above four kinds of experience is seen in Figure 1. In Figure 1, the critical experience is the center of other three kinds of experiences. And with the updating to fulfill consumers' demand level, the experience is continually expanding to the periphery, and accordingly achieves the overflow experience on the most exterior level. The implementation of four kinds of experience all can fulfill consumers' demands and actualize consumer value, and realize the management target of the enterprise, and achieve the double-win of enterprise and consumers.

1.2 Experience economy

The so-called experience economy is a kind of economic form that the enterprise takes service as the key and takes the commodity as the materials to create valuable feelings for consumers. The traditional economy mainly gives priority to powerful function, beautiful exterior, and cheap price of the products, but the present tendency is to start from the life and situation to build the sense experience and thinking cognition, which can grasp consumers' attention, change their consumption behaviors, and find new survival value and space for the products. Just as the status of the service economy is higher than the product economy's, the status of the experience economy is higher than the service economy. Essential differences exist between the experience economy with the product economy, the commodity economy and the service economy (The comparison of the attributes of various economy types is seen in Table 1).

1.3 Experience marketing

The experience marketing is the marketing measure that the enterprise tempts consumers to consume, and utilizes consumption experience to drive consumers to cognize the product, and finally promote the distribution of the product. The marketing personnel experience consumers' buying concept, buying program, buying psychology and buying drive from consumers' view, i.e. they should redesign and redefine the marketing from five aspects including consumers' sense, sensibility, thinking, action and association. This kind of thinking breaks traditional hypothesis of “rational consumers”, and thinks that consumers' consumption is rational and sensible, and consumers' experiences before consumption, in consumption and after consumption are the key to study consumers' actions and the brand management. The experience marketing emphasizes consumers' participation, contact, and “emotional resonance”, and it is largely

difference with the traditional marketing (seen in Table 2).

2. Advantage Analysis of the Experience Marketing

2.1 Enhancing the profit ability of enterprise

By good service and consumers' active participation, the experience marketing can enhance the additive values of products and services, and increase the profits of enterprise. The experience marketing doesn't take the price as the competitive measure, but utilizes individualization, service, quality, function and technical character as the competitive measures, and make the benefits brought by high-quality product and service to counteract even exceed the price difference additionally paid by consumers for this high-quality service. In this way, to bring different services for various consumers and realize the additive values of the brand and the maximum commercial value in the tiny services could realize the real profits in experiences.

2.2 Offering new market chance

The experience marketing could properly be the standard to measure client satisfaction, i.e. client's feeling. It is human-oriented, and creates the brand by actions, and tries to keep and develop client resources, and really actualize the promises what it made for clients.

2.3 Enhancing consumers' loyalty for enterprise

With the demands for emotion and rationality, consumers could feel excited in the contact with the enterprise, and leave memorable and nice memories. The experience formed between consumers and enterprise makes consumers to want to acquire more experiences, and further communication with the enterprise, and in this way, loyal consumers of the enterprise can be formed. The experience marketing could better and comprehensively fulfill consumers' demands, and always take consumers' experiences as the orientation in the design, production, distribution, and after service, so more loyal consumers could be cultivated in this process.

2.4 Enhancing the brand recognition of enterprise

People would pay higher price for the brand, or buy more commodities with brands. The brand could express six kinds of meaning, i.e. attribute of product, function and emotional benefit, value view, culture of enterprise, individuality of product, and users' character. The sustainable meaning of one brand is its value view, culture and individuality. The brand is the best carrier to carry spiritual benefit. Surrounding one topic, the experience marketing could profoundly convulse consumers' heart, fulfill consumers' mental demands, endow the brand for special experience connotation, and better enhance the brand recognition of enterprise.

3. Analysis of Consumer Experience Demand Characters

3.1 Interaction

To make consumers to generate nice experiences for the commodities and services offered by the enterprise, the enterprise, the experience provider, must deeply analyze and grasp the experience proffers which can stimulate consumers' nice feelings, because any one kind of experience should be the result of interaction between consumer's individual intelligence status with those conscious planning events.

3.2 Difference

As consumers' mental spirit and psychological feeling, the experiences are different because of different people's education, culture, story, and taste, so different people would generate different experiences. Therefore, the enterprise must carefully study the objective consumers' differences of experience demand according to the consumers' individual and psychological characters.

3.3 Active consumption

Whether in the experience production, or in the experience consumption, consumers' experience could be active, and it is consumers' individual psychological feeling. Therefore, how to instruct and implement the experience diffusion to attract consumers' consumption demand and desire is the research task which should be further studied for the enterprise.

3.4 Real-time and continuation

In the experience consumption, the experienced buyer could obtain truly feeling on the scene, and good psychological feeling can bring psychological pleasure instantly, though this feeling is real-time, but the value of this experience could continue in consumers' heart.

4. Basic Principles of the Experience Marketing Strategy Design

4.1 Confirming the topic of experience

Topic is the base of experience, to confirm good topic is the key step going to the road of experience. A good topic

which can stimulate experience should be simple and affecting, and accord with the consumption psychology. Only thus topic can stimulate consumers' emotion and desire. The conformation of topic is a work with strong challenge. First, before the topic is confirmed, all topics should be selected from good angles such as classic civilization, rural feeling and nostalgia, urban sentiment, popular fashion, natural zoology, custom and habits, scientific fantasy or a sort of special living mode. The key to select good angle is to grasp what is really compelling. To understand that point, designer should deeply investigate consumers' emotion and psychological process, social culture and natural conditions, and grasp abundant various kinds of knowledge as much as possible, and exert large fancy and arts exploring spirit. Second, various factors composing the topic must be harmonious. The experience topic with sufficient lingering charms depends on the organic matching of various factors carefully designed, and only these factors are combined properly, consumers' experience could be deepened and the topic could be dominant.

4.2 Building image by positive clues

After confirming a topic, clues should be built closely surrounding this topic. By elaborately combining material things, the whole environment where consumers could easily grasp the topic can be created, which can exert clues incisively and vividly, fully stimulate consumers' senses, make consumers to be personally on the scene, and leave memorable image finally.

4.3 Eliminating negative clues

To build complete experience, not only many positive clues should be designed, but many negative clues which will weaken, refuse, and transfer the topic must be eliminated. The experience marketing could create an impressive environment for consumers, and this environment will be hard to avoid contain some negative clues disobeying the topic, and a tiny negative clue may largely influence the effect of the topic, even run counter to the topic sometimes.

4.4 Fully utilizing keepsakes

To offer keepsakes for consumers to memorize experience will strengthen the effect of experience. Though the price of keepsake is not much higher than the same product without memorable value, but because it has the value to memorize the experience, consumers are still wide about buying.

4.5 Integrating various sense stimulations

Marketing strategy design personnel should consider how to stimulate consumers' vision, hearing, feeling and various sense organs, in order to promote consumers to develop abundant images about the topic, and leave impressing image in consumers' hearts.

5. Design of 6Es Strategies for Experience Marketing Based on Consumers' View

5.1 Strategy of experience

The experience is the most basic factor in the combination of experience marketing, and it describes the experience what the enterprise offers to consumers. However, consumers' experience can not be distinguished clearly to belong to the type or the combination of several types. Based on the level development of value, this kind of combination is presented by the form of "wheel of experience". When designing the experience strategy, the connection point of various types should be found, and on the connection point, the experience lines should be expanded and combined to generate a complete consumer experience plan.

5.2 Strategy of environment

The environment is the "show stage" established by the enterprise for consumers, and it is the exterior environment generated by the experience. It can be designed as not only the practical scene, but also the visual world. In the design of environment strategy, the knowledge about dramatic theory, psychology and sociology can be referred, but the environment strategy must serve for the experience strategy.

5.3 Strategy of event

The event is a series of performing program set for consumers. The enterprise must specially design the performing process, and form the event strategy. According to the relaxing degree, the event strategy can be divided into two modes. One is to establish strict program such as the online game. The other is to set up relatively loose program with certain flexibility, such as the farm experience activity organized by the "Disney Birthday Club". In the design of event strategy, except for considering consumers' activities, it should consider the relationship among consumers, and if their activities can not be harmonized, negative experiences are easily brought, which is large loss for the enterprise.

5.4 Strategy of engaging

The experience marketing pays attention to consumers' active participation, and the strategy of engaging is to make consumers to really engage into the event designed by the enterprise by means of the marketing measure, and it requires that the consumers should be a real "player" in the role design. Only consumers really participate into the event, its

psychological activity can really emerge into the environment, and finally induce the generation of paid experience.

5.5 Strategy of effect

When releasing experience to consumers, the experience marketing should pay attention to consumers' lifetime value, and the introduction of effect strategy is just based on that. The memorable process of experience generates the effect which is the important factor to maintain long-term consumer relationship.

5.6 Strategy of expanding

Consumers' experience can be expanded to other products of the enterprise, or to different regions and terms, and be diffused to other people for realizing the maximum of consumer value. By the complete implementation of the expanding strategies from various measures, the experience marketing can extremely exert the efficiency of the experience.

In the combination strategy of 6Es, various strategies are associated very closely. First, the experience strategy is the design process of the experience, and it is the premise and base of the environment strategy, the event strategy and the emerging strategy, and other strategies must obey and sever for the basic connotation and ideas of the experience strategy. Second, the environment strategy, the emerging strategy and the event strategy are the implementation process of the experience, and by the implementation of these three strategies, the enterprise can complete the generation and releasing of the experience. Finally, the effect strategy and the expanding strategy are the management process of the experience marketing, and they are based on the former strategies, and the input of next experience releasing process, and they will influence the strategy combination of next experience releasing.

6. Route Selection of the Experience Marketing Strategy

6.1 Changing from fulfilling consumers' demands to fulfilling consumers' desire and adding consumers' experience in the marketing concept

In the management of enterprise, the experience marketing scans the management of enterprise from fulfilling consumers' desire and adding consumers' experience, and emphasizes fulfilling consumers' spiritual and psychological demands, and this change of consumption demand is the necessity of the development of the market economy. From the view of development, the consumption demand can be divided into three different stages. The first stage is the "fulfillment time of quantity", and the second stage is the "fulfillment time of quality", and the third stage is the current "time of experience consumption". The evolvement of three stages is closely correlated with the development of society and economy from "quantity" to "quality", and it is the social and economic development from "dressing warmly and ear one's fill" to "richness" and to "enjoyment". In the stage of enjoyment, consumers more emphasize the taste, style and good sense of consumption.

6.2 The marketing emphasis gives priority to fulfilling consumers' psychological, spiritual and emotional demands

In the time of experience consumption, single volume-production can not sufficiently fulfill the demands, and to achieve the difference, diversification and individuation of the product, the modern enterprise must take consumers' psychological character, life mode, life attitude and behavior mode as the base to deal with the production management, production design, manufacturing and distribution, which can accord with human spiritual demand, and make the products and services to induce consumers' association and resonance, and create the market performance. For example, the salability of the commodities such as the combined stationery, the palette cosmetic, the worn-out jeans, the new environment disc and tape presenting natural scene is because that the manufactures not only offer commodities, but better fulfill consumers' inner emotional experience. The combined stationery on the desk is not only used as the stationary, but adds the interests of the office, and the palette cosmetic could accord with human changing moods.

In the drastic market competition nowadays, the time that only depends on the hard ad bombing to enhance the additive value of the brand and obtain profits has been the past, and in the days that many brands have completed the initial assets of brand by advertisements in China, to fulfill consumers' desire and creation experience should be the emphasis to occupy consumers' mentality, and consumers should really accept the core value of the brand and identify with it form the bottom of their hearts. At the same time, how to go out from the circle of single advertisement battle and price battle, and how to create a kind of good psychological taste and special experience for consumers by the integrated marketing measures including products, services, consumption environment and marketing extension, have been a new task for modern enterprises to win in the market.

6.3 Creating and strengthening the brand image of experience in the promotion strategy

Today, the consumption market has entered into the stage of autumn, and consumers' demand has already exceeded the stage of "quality", and begins to enter into the "taste" level on higher layer. The taste is not the commodity, but the concept, so the commodity extension in the 21st century is not to sell the commodity, but sell the concept, i.e. creating a kind of brand image emphasizing experience, and under that environment, consumers will actively buy, possess and use this commodity. In the drastic market competition that the homogeneity tendency is gradually obvious, single benefit

demand has not touched consumers' heart, but the high-level taste pursuing which can fulfill consumers' dignity and self-implementation can more arouse consumers' resonance. Therefore, combining with the character of product and consumption psychology, the concept of "taste" which could conquer consumers' heart can create a kind of brand image emphasizing the experience.

7. Conclusions

Traditional marketing pays attention to the character and benefit of the product, and regards consumers as a purchase decision-maker, and regards consumers' decision as a process to solve problems in which consumers very rationally analyze and evaluate and make the purchase decision, i.e. the traditional marketing pays attention to the classification of product and the marketing orientation in the competition. But the emphasis of the experience marketing lies in consumer experience, and it thinks that consumers are rational and sensible, and they can experience the consumption scene in extensive social and cultural background. To adapt the new change of the marketing environment in the time of experience economy, the strategy of enterprise marketing must make corresponding adjustments. The strategy of experience marketing can be induced as in the Figure 2.

(1) Integrating with the total strategy of the enterprise, the experience marketing takes the topic of emotional experience as the start of the enterprise marketing strategy.

The experience should confirm a "topic" first, i.e. the experience marketing starts from a topic and all services surround this topic, or at least, a "topic prop" should be established. These "experiences" and "topics" appear non-randomly, but are designed by the marketing personnel of the enterprise.

(2) Taking "adding consumer experience" as the guidance of the marketing activity.

The experience marketing tries to near consumers, and taste consumers' demands and feelings, and fulfill consumers' psychological demands by the "emotional marketing". The enterprise should understand which stimulation can induce the emotion, and naturally infect consumers to emerge into this environment.

(3) Taking "fulfilling and creating consumers' individualized demands" as the emphasis of marketing.

(4) Taking the consumer participation as the marketing measure to strengthen the interaction between enterprise and consumers.

First, the communication network between enterprise and consumers should be established. Second, the enterprises should emphasize the technology innovation, use highly new technologies, especially the modern communication technology and measure, to fulfill consumers' demands by offering convenient and quick products and services. Finally, the brand connotation should be built to strengthen consumers' sensibility requirement for the product. In the time of experience economy, the product is not the leading actor of the marketing activity, but the prop to build certain life mode. Only when establishing the strategy of experience marketing, the enterprise can support it from the total strategy of enterprise, and implement it from the marketing strategy, and integrate the "experience" into each aspect of enterprise marketing. In that way, the enterprise can establish the strategy of experience marketing which can accord with the interior and exterior environment of the enterprise, and be propitious to the long-term development of the enterprise.

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Table 1. Comparison of the attributes of various economy types

Economy proffer	Product	Commodity	Service	Experience
Economy type	Agriculture	Industry	Service	Experience
Economy function	Excavating & abstracting	Manufacturing	Transfer	Stage revelation
Character of proffer	Material	Corporeal	Immaterial	Memorable
Key attribute	Natural	Standard	Custom-built	Individualized
Supply method	A great deal storages	Repertory after production	Transferring according to requirements	Disclosed after a period of time
Seller	Trader	Manufacturer	Proffer	Comforter
Buyer	Market	User	Client	Guest
Demand factor	Character	Character	Benefit	Prominence feeling

Table 2. Comparison between the experience marketing mode and the traditional marketing modes

Mode of traditional marketing	Mode of experience marketing
Be absorbed in the character and benefit of the product	Focus on customers' experiences
Regard consumers as rational buying decision-maker, and regard consumer's decision as a process of solving problem including very rational analysis and evaluation, and final buying decision	Think that consumers are rational and sensitive, and the probabilities that consumers buy because of rationality and because of temporary impulsion pursuing interest and stimulation are same
Pay attention to the classification of products and the marketing orientation in competition	Test consumption situation in extensive social background

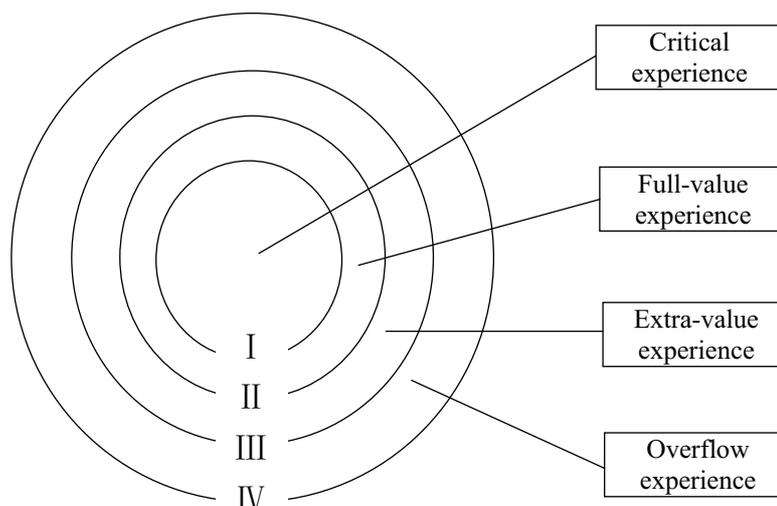


Figure 1. Four Levels of Experience Marketing

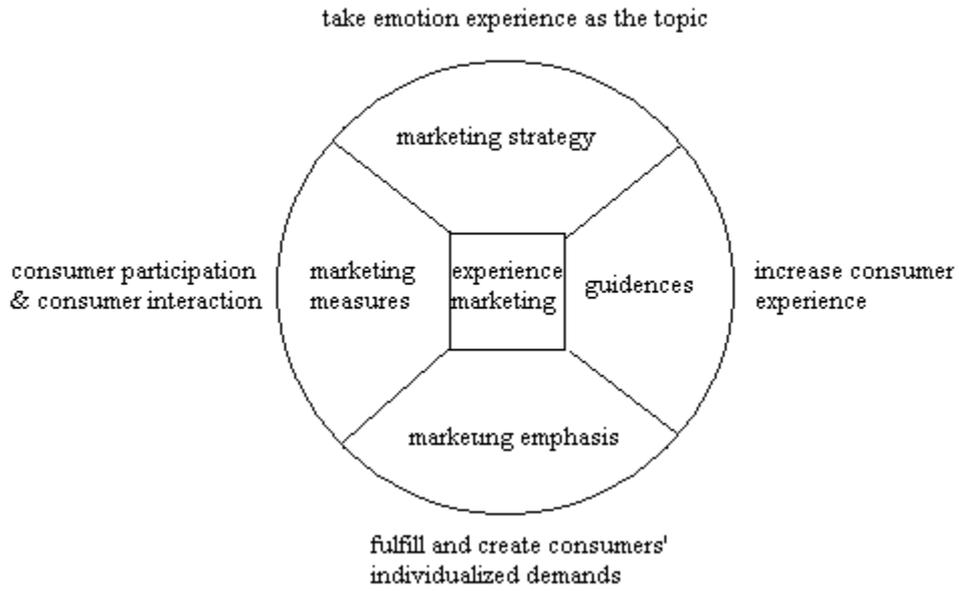


Figure 2. Experience Marketing Strategy Constitution Relationship Model Based on Consumers' Value



The FDI- Led- Growth Hypothesis in ASEAN- 5 Countries: Evidence from Cointegrated Panel Analysis

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Abstract

The paper works out the relationship between foreign direct investment (FDI) and economic growth in the five ASEAN countries namely, Indonesia, Malaysia, Philippines, Singapore and Thailand over the period 1970-2007. The empirical analysis is based on cointegration and causality test, both at the individual level and panel level. The results confirm that foreign direct investment and economic growth are cointegrated at the panel level, indicating the presence of long run equilibrium relationship between them. This is, however, true only for Singapore and Thailand at the individual country level. The Granger causality test further gives evidence that there is bidirectional causality between foreign direct investment and economic growth both at the panel level as well as individual country level except Malaysia.

Keywords: Economic growth, FDI, Panel cointegration

1. Introduction

Foreign direct investment (FDI) is widely accepted as a vehicle for country's economic growth. The importance of FDI is, in fact, much higher in the developing countries. This is because of their inability to generate internal savings in response to their investment needs. Moreover, one of the most cited reasons for the high economic growth in Asia in the recent era is due to the inflows of foreign direct investment. It is considerably true that FDI is one of the most effective ways by which developing economies are integrated with rest of the world, as it provides not only capital but also technology and management know-how necessary for restructuring the firms in the host countries (Pradhan, 2006; Borensztein et al., 1998; Chao and Yu, 1994; Grossman and Helpman, 1991; Barro and Sala-I-Martin, 1995). FDI usually fills up at least three developmental goals such as (1) saving investment gap by contributing the much needed capital for domestic investment (Vadlamannati et al. 2009); (2) foreign exchange gap by generating foreign currency through initial investments and subsequent export earnings; and (3) tax-revenue gap by accumulating tax revenues through additional socio- economic activities (Noorbakhsh et al., 2001; Smith, 1997). The positive impact of FDI on economic growth is driven by transferring knowledge and other firm assets (Sethi et al., 2003; Hermes and Lensink, 2003) relating to productivity improvement or the spillover effects of FDI (see Figure 1). Hence, the increasingly significant role of FDI in the growth dynamics of developing countries has created much research interest among the development economists (Quazi, 2007) and is debated quite extensively in the development literature.

There are two ways we can work out the relationship between FDI and economic growth. First, the production function approach (Harms and Ursprung, 2004; Lipesy, 2000; Zapata and Rambaldi, 1997; Lin, 1995; Tsai, 1994; Wang, 1990; Feder, 1983; Tyler, 1981; Balassa, 1978); second, the time series approach (Nair-Reichert and Weinhold, 2001; Bahmani-Oskooee and Niroomand, 1999; De Mello, 1999; Kasibhatla and Sahney, 1996; Saltz, 1992; Jung et al., 1985). The paper, however, explores the time series approach of FDI-growth relationship. There are number of research papers that explore the relationship between FDI and economic growth. The empirical evidence is, however, very mixed and inconclusive. They are obtained in three different forms: unidirectional causality (either from FDI to economic growth or from economic growth to FDI), bidirectional (from FDI to economic growth and vice versa) and no causality between the two. It varies across countries and time periods.

The purpose of this study is to empirically re-investigate the relationship between FDI and economic growth in the ASEAN-5 countries, namely Indonesia, Malaysia, Philippines, Singapore and Thailand. Though the goal of this study is similar to those of previous studies in this area of research, the method of analysis is different at least in one ground. That is the use of panel cointegration and causality, rather than simple univariate time series analysis. The rest of the

paper is organized as follows: section 2 describes literature review; section 3 provides econometric setting and database; section 4 analyses the results; and section 5 provides conclusion.

2. Literature Review

The two-way link between foreign direct investment and economic growth stems from the fact that higher foreign direct investment stimulates high economic growth in the host country and higher economic growth in the host countries attract more foreign direct investment. Theoretically, there is no difference prediction on the nexus between FDI and economic growth. The empirical analysis, however, provides very contradictory results.

Borensztein et al. (1998) examined the relationship between FDI and economic growth in 69 developing countries over the period 1970-1989. They find that FDI has a positive impact on economic growth, but the nexus is partly dependent on the availability of human capital in the host country. The Li and Liu (2005) find similar results from the sample of 84 countries over the period 1970-1999. Obwona (2001) and Bengoa and Sanchez-Robles (2003) suggest that, for FDI to have positive impacts on economic growth, the host country must have macroeconomic and political stability, policy credibility and an increase in the openness of an economy. Coe et al. (1997) detect the positive association between FDI and economic growth, but suggest that the host country should have an attained level of development that helps it reap the benefits of higher productivity.

Dua and Rashid (1998) find the causality from FDI to economic growth in India during 1992-1998, while Chakraborty and Basu (2002) find the reverse causality from economic growth to FDI. De Mello (1999) detects positive effects of FDI on economic growth in 32 OECD and non-OECD countries over the period 1970-1990. Ericsson and Irandoust (2001) examined the causality between FDI and growth for four OECD countries, namely Denmark, Finland, Norway and Sweden. They, however, do not find any causality between FDI and economic growth in Denmark and Finland, but suggest that specific dynamics and nature of FDI entering these countries could be responsible for these no-causality results. Zhang (2001) has tested the FDI-led growth hypothesis in East Asian and Latin American countries. He finds the mixed results. That means FDI causes economic growth in some countries and economic growth causes FDI in some other countries. Carkovic and Levine (2002) analyzed the relationship between FDI and economic growth for a sample of 72 countries. They conclude that FDI do not exert any independent influence on economic growth for both developed and developing countries.

Liu et al. (2002) examined the presence of long run relationship among FDI, growth and exports in China during 1981-1997. They find the existence of bidirectional causality among them. Wang (2002) examined the nexus between FDI and economic growth in the sample of 12 Asian countries over the period 1987-1997. He suggests that FDI in the manufacturing sector has a significant positive impact on economic growth and attributes this positive contribution to FDI's spillover effects. Campos and Kinoshita (2002) explored the effects of FDI on economic growth for 25 Central and Eastern European and former Soviet Union economies. They find that FDI had a significant positive effect on the economic growth of each selected country. De Gregorio (1992) finds similar results for Latin American economies and Blomstrom et al. (1992) finds similar results from 78 developing countries. Hsiao and Shen (2003) find a feedback association between FDI and economic growth in China. Choe (2003) finds a bi-directional causality between FDI and growth for a sample of 80 countries over the period 1971-1995, but suggest that the effect is more apparent from economic growth to FDI. Chowdhury and Marvrotas (2005) examined the causal association between FDI and growth from Chile, Malaysia and Thailand. They find the unidirectional causality from economic growth to FDI in Chile and a two-way causation between the two from other two countries. Duasa (2007) detects no causality between FDI and economic growth in Malaysia, but suggested that FDI does contribute to stability of growth. The above earlier findings give the evidence that the nexus between foreign direct investment and economic growth is far from straightforward (Vu and Noy, 2009). It varies from country to country and even within a country with different time periods.

3. Econometric Setting and Database

The FDI- led- growth hypothesis will be performed in three steps: (1) test for order of integration; (2) test for cointegration; and (3) test for direction of causality. We conduct these three tests at the individual as well as panel level. The detail descriptions of these three tests are mentioned below.

3.1 Panel Unit Root Test

The traditional Augmented Dickey Fuller (Dickey and Fuller, 1981) and Phillips and Perron (Phillips and Perron, 1988) unit root test is usually used to check the stationarity of time series variables. But the limitation of this technique is that it has a problem of low power in rejecting the null hypothesis of stationarity of the time series, particularly for small size of data. The literature suggests that panel unit root test has higher power than the unit root test based on univariate time series. A number of such tests are available in the literature. However, we use LLC (Levin et al., 2002) and IPS (Im et al., 2003) unit root tests for the present analysis. They are very popular and are based on the lines of ADF principle. The LIC assumes homogeneity in the dynamics of the autoregressive coefficients for all panel numbers, while

IPS assumes for heterogeneity in these dynamics. Therefore, it is otherwise called as “heterogeneous panel unit root tests”.

LIC proposes a panel-base augmented Dickey-Fuller (ADF) test with a panel setting and restricts γ to keep it identical across cross-sectional regions. The test imposes homogeneity on the autoregressive coefficient that indicates the presence or absence of a unit root whereas the intercept and trend can vary across individual series. The model only allows for heterogeneity in the intercept and is given by

$$\Delta Y_{i,t} = \alpha_i + \gamma Y_{i,t-i} + \sum_{j=1}^{p_i} \beta_j \Delta Y_{i,t-j} + \varepsilon_{i,t} \quad \dots\dots\dots (1)$$

Where $Y_{i,t}$ is a series for panel member (country) i ($i = 1, 2, \dots, N$) over period t ($t = 1, 2, \dots, T$), p_i is the number of lags in the ADF regression and the error term $\varepsilon_{i,t}$ are assumed to be IID $(0, \sigma^2)$ and to be independent across the units of the sample. The model allows for fixed effects, unit specific time trends and common time effects. The coefficient of the lagged dependent variable is restricted to be homogenous across all units of the panel. Hence, the null hypothesis of non-stationary is as follows:

$H_0: \gamma_i = 0$, is tested against the alternative,

$$H_A: \gamma_i = \gamma < 0 \quad \text{for all } i \quad \dots\dots\dots (2)$$

Where, the fixed effect model in equation 1 is based on the usual t-statistics.

$$t_\gamma = \frac{\hat{\gamma}}{s.e(\hat{\gamma})} \quad \dots\dots\dots (3)$$

Where, γ is restricted by being kept identical across regions under both null and alternative hypothesis.

The IPS begins by specifying a separate ADF regression for each cross section (country):

$$\Delta Y_{i,t} = \alpha_i + \gamma_i Y_{i,t-i} + \sum_{j=1}^{p_i} \beta_{i,j} \Delta Y_{i,t-j} + \varepsilon_{i,t} \quad \dots\dots\dots (4)$$

Where series $y_{i,t}$ ($i = 1, 2, \dots, N$; $t = 1, 2, \dots, T$) is the series for panel member (country) i over period, p_i is the number of lags in the ADF regression and the error terms $\varepsilon_{i,t}$ are assumed to be IID $(0, \sigma_i^2)$ for all i and t . Both γ_i and the lag order β in equation (4) are allowed to vary across sections (countries). IPS relaxes the assumption of homogeneity of the coefficient of the lagged dependent variable. They test the null hypothesis that each series in the panel has a unit root for all cross-section units against the alternative that at least one of the series is stationary.

$H_0: \gamma_i = 0$ for all i , is tested against the alternative,

$H_A: \gamma_i = \gamma_i < 0$ for $i = 1, 2, \dots, N_1, \gamma_i = 0$,

$$i = N_1 + 1, N_1 + 2, \dots, N \quad \dots\dots\dots (5)$$

The alternative hypothesis simply implies that some or all of the individual series are stationary. IPS developed two test statistics and called then the LM-bar and the t-bar tests. The IPS t-bar statistics is calculated using the average of the individual Dickey-Fuller τ statistics.

$$\bar{t} = \frac{1}{N} \sum_{i=1}^N \tau_i \quad \dots\dots\dots (6)$$

$$\bar{\tau} = \frac{\hat{\gamma}_i}{s.e(\hat{\gamma}_i)} \quad \dots\dots\dots (7)$$

Assuming that the cross sections are independent, IPS proposes the use of the standardized t-bar statistic as shown below.

$$\bar{Z} = \frac{\sqrt{N}(\bar{\tau} - E(\bar{\tau}))}{\sqrt{Var(\bar{\tau})}} \dots\dots\dots (8)$$

The term $E(\bar{\tau})$ and $Var(\bar{\tau})$ are the mean and variance of τ statistic. They are generated by simulations and are tabulated in IPS (Im et al., 2003).

3.2 Panel Cointegration Test

When the series becomes stationary only after being differenced once, they might have linear combinations that are stationary without differencing. Such series are usually called cointegrated (Granger, 1988). If integration of order one is obtained, the next step is to use cointegration technique in order to know whether there exists a long run relationship among the set of the integrated variables. The Johansen’s Vector Auto regression (VAR) test of integration (Johansen, 1988) is usually used for this above problem. The VAR is a systemic approach to cointegration that allows determination of up to r linearly independent cointegrating vectors ($r \leq g - 1$, where g is the number of variables tested for cointegration). The estimated cointegration equation is of the following form:

$$Y_{it} = \beta_{i0} + \beta_{i1}X_{i1t} + \beta_{i2}X_{i2t} + \dots + \beta_{ik}X_{ikt} + \varepsilon_{it} \dots\dots\dots (9)$$

The equation can be re-written as

$$\varepsilon_{it} = Y_{it} - (\beta_{i0} + \beta_{i1}X_{i1t} + \beta_{i2}X_{i2t} + \dots + \beta_{ik}X_{ikt}) \dots\dots\dots (10)$$

And the cointegration vector is

$$[1 - \beta_{i0} - \beta_{i1} - \beta_{i2} \dots - \beta_{ik}] \dots\dots\dots (11)$$

Johansen’s procedure is useful in conducting individual cointegration tests, but does not deal with cointegration test in panel settings. Instead, the recently developed panel cointegration tests by Pedroni (2004; 1999) provide a technique that allows for using panel data and thereby, overcoming the problem of small samples, in addition to allowing for heterogeneity in the intercepts and slopes of the cointegrating equation. The test starts with the following time series panel regression.

$$Y_{i,t} = \alpha_i + \sum_{j=1}^{p_i} \beta_{ji}X_{jit} + \varepsilon_{it} \dots\dots\dots (12)$$

$$\varepsilon_{it} = \rho_i \varepsilon_{i(t-1)} + w_{it} \dots\dots\dots (13)$$

Where Y_{it} and X_{jit} are the observable variables with dimension of $(N* T)$ X 1 and $(N* T)$ X m respectively; ε_{it} represents the disturbance term from the panel regression; α_i allows for the possibility of country-specific fixed effects and the coefficients of β_{ji} allows for the variation across individual countries.

The null hypothesis of no cointegration of the pooled (within-dimension) estimation is

$$H_0: \rho_i = 1 \text{ for all } i \text{ against } H_0: \rho_i = \rho < 1 \dots\dots\dots (14)$$

Here, under alternative hypothesis, the within-dimensional estimation assumes a common value for $\rho_i = \rho$. That means it does not allow an additional source of possible heterogeneity across individual country members of the panel.

The null hypothesis of no-cointegration of the pooled (between-dimension) estimation is

$$H_0: \rho_i = 1 \text{ for all } i \text{ against } H_0: \rho_i < 1 \dots\dots\dots (15)$$

Here, under alternative hypothesis, the between-dimensional estimation does not assume a common value for $\rho_i = \rho$. That means it allows an additional source of possible heterogeneity across individual country members of the panel.

Pedroni suggested two types of test to know the existence of heterogeneity of cointegration vector. First, the test based on within- dimension approach (i.e. panel test). It includes four statistics such as panel v- statistic, panel ρ - statistic, panel PP- statistic and panel ADF- statistic. These statistics pool the autoregressive coefficients across different members for the unit root tests on the estimated residuals. Second, the test based on between- dimensional approaches (group test). It includes three statistics such as group ρ -statistic, group PP-statistic and group ADF-statistic. These

statistics are based on estimators that simply average the individually estimated coefficients for each member. The details of heterogeneous panel and heterogeneous group mean panel cointegration statistics are calculated as follows:

Panel v- statistic

$$Z_v = \left[\sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{\epsilon}_{it-1}^2 \right]^{-1} \dots\dots\dots (16)$$

Panel ρ- statistic

$$Z_\rho = \left[\sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{\epsilon}_{it-1}^2 \right]^{-1} \sum_{i=1}^N \sum_{t=1}^T L_{11i}^{-2} \left(\hat{\epsilon}_{it-1} \Delta \hat{\epsilon}_{it} - \hat{\lambda}_i \right) \dots\dots\dots (17)$$

Panel PP- statistic

$$Z_t = \left[\hat{\sigma}^2 \sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{\epsilon}_{it-1}^2 \right]^{-0.5} \sum_{i=1}^N \sum_{t=1}^T L_{11i}^{-2} \left(\hat{\epsilon}_{it-1} \Delta \hat{\epsilon}_{it} - \hat{\lambda}_i \right) \dots\dots\dots (18)$$

Panel ADF- statistic

$$Z_t^* = \left[\hat{s}^{*2} \sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{\epsilon}_{it-1}^{*2} \right]^{-0.5} \sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{\epsilon}_{it-1}^* \Delta \hat{\epsilon}_{it}^* \dots\dots\dots (19)$$

Group ρ- statistic

$$\tilde{Z}_\rho = \sum_{i=1}^N \left(\sum_{t=1}^T \hat{\epsilon}_{it-1}^2 \right)^{-1} \sum_{t=1}^T \left(\hat{\epsilon}_{it-1} \Delta \hat{\epsilon}_{it} - \hat{\lambda}_i \right) \dots\dots\dots (20)$$

Group PP- statistic

$$\tilde{Z}_t = \sum_{i=1}^N \left(\hat{\sigma}^2 \sum_{t=1}^T \hat{\epsilon}_{it-1}^2 \right)^{-0.5} \sum_{t=1}^T \left(\hat{\epsilon}_{it-1} \Delta \hat{\epsilon}_{it} - \hat{\lambda}_i \right) \dots\dots\dots (21)$$

Group ADF- statistic

$$\tilde{Z}_t^* = \sum_{i=1}^N \left(\sum_{t=1}^T \hat{s}_i^{*2} \hat{\epsilon}_{it-1}^{*2} \right)^{-0.5} \sum_{t=1}^T \left(\hat{\epsilon}_{it-1}^* \Delta \hat{\epsilon}_{it}^* \right) \dots\dots\dots (22)$$

Where, $\hat{\epsilon}_{it}$ is the estimated residual from equation (12) and \hat{L}_{11i}^{-2} is the estimated long run covariance matrix for $\Delta \hat{\epsilon}_{it}$. Similarly, $\hat{\sigma}_i^2$ and \hat{s}_i^{*2} (\hat{s}_i^{*2}) are the long run and contemporaneous variances for individual i. All seven tests are asymptotically standard normal distribution given by the respective panel/ group cointegration statistic. The panel v is a one sided test where large positive values reject the null hypothesis of no cointegration. The other remaining statistics diverge to negative infinite, which means that large negative values reject the null hypothesis. These tests are able to accommodate individual specific short-run dynamics, individual specific fixed effects and deterministic trends as well as individual specific slope coefficients (Pedroni, 2004).

3.3 Panel Granger Causality Test

Traditionally we use the standard Engle- Granger two step procedures to examine the direction of causality. The present study, however, uses panel causality test, as proposed by Holtz- Eakin et al. (1988). Two different models can be used to investigate the relationship.

Model 1: If the time series variables are 1 (1) and not cointegrated, we can use the following causality model:

$$\Delta GDP_{it} = \eta_j + \sum_{k=1}^p \alpha_{ik} \Delta GDP_{it-k} + \sum_{k=1}^q \beta_{ik} \Delta FDI_{it-k} + \Delta \varepsilon_{it} \quad \dots\dots\dots (23)$$

$$\Delta FDI_{it} = \eta_j + \sum_{k=1}^p \alpha_{ik} \Delta FDI_{it-k} + \sum_{k=1}^q \beta_{ik} \Delta GDP_{it-k} + \Delta \varepsilon_{it} \quad \dots\dots\dots (24)$$

Where, GDP represents economic growth and FDI represents the inflows of foreign direct investment.

Model 2: If X and Y are 1 (1) and cointegrated, then the causality is tested by using error correction model. This is represented as follows:

$$\Delta GDP_{it} = \eta_j + \sum_{k=1}^p \alpha_{ik} \Delta GDP_{it-k} + \sum_{k=1}^q \beta_{ik} \Delta FDI_{it-k} + \lambda_i EC_{1it-k} + \Delta \varepsilon_{1it} \quad \dots\dots\dots (25)$$

$$\Delta GDP_{it} = \eta_j + \sum_{k=1}^p \alpha_{ik} \Delta GDP_{it-k} + \sum_{k=1}^q \beta_{ik} \Delta FDI_{it-k} + \lambda_i EC_{3it-k} + \Delta \varepsilon_{3it} \quad \dots\dots\dots (26)$$

Where EC is error correction term and that is obtained from the cointegrating equation.

The empirical analysis is based on a panel of three emerging countries, namely Indonesia, Malaysia, Philippines, Singapore and Thailand, over the period 1970-2006. The choice of countries is randomly selected and the span of data reflects data availability. The data are obtained from World Investment Report, UNCTAD, Geneva. The data are used in normalized form. The following formula has been used for the normalization.

$$I_i(X_i) = X_i / X_i^{\max} \quad \dots\dots\dots (27)$$

Where, X_i^{\max} denotes maximum of variable i.

4. Results and Discussion

In the light of econometric setting presented in the previous section, the empirical results are discussed in this section. The analysis is started by the test of the stationarity properties of the data series. This is the prime requirement for cointegration and causality test. There are two ways we establish the integration properties of the data: univariate unit root test and panel unit root test. The Phillips and Perron test has been applied to individual series, while LLC and IPS test have been applied to panel of five countries, namely Indonesia, Malaysia, Philippines, Singapore and Thailand. Table 1 presents the results of unit root tests, both at the individual level and panel level. The results indicate that all the time series variables that used in the study have unit roots. The estimated PP statistics cannot reject the null hypothesis of non-stationarity at 10% level of significance. However, they are stationary at the first difference level, as the null hypothesis of non-stationarity is rejected at 5% level of significance. This represents that the variables are integrated of order one, 1 (1).

Having confirmed the existence of unit roots for all the data series, the next step is to check possibility of long run equilibrium relationship between them. The cointegration test is applied for the same at the individual level as well as panel level. The Johansen's maximum likelihood test has been applied for each country in the panel and Pedroni's panel cointegration test has been applied to the three countries panel. The estimated results of Johansen's test for individual countries are reported in Table 3, while the results of the panel cointegration tests (Pedroni's test) from the seven statistics are reported in Table 4. The results reflect that there is cointegration between foreign direct investment and economic growth at Singapore and Thailand at the individual level and the panel of five ASEAN countries. That means the results confirmed that foreign direct investment and economic growth are share a long run equilibrium relationship in the ASEAN countries. This indicates that there is possibility of causality between foreign direct investment and economic growth. Moreover, the existence of no cointegration between the two in the Indonesia, Malaysia and Philippines does not mean the absence of causality or any relation in the short run. For those countries whose economic growth and foreign direct investment do not move together in the long run (i.e. cointegration), but they may affect each other in the short run. We use Error Correction Model (ECM), where there is presence of cointegration and simple Granger causality, where there is no cointegration, to know the direction of causality between foreign direct investment and economic growth.

The Table 4 presents the results of causality test, both at the individual level and panel level. The results showed that there is presence of bidirectional causality between foreign direct investment and economic growth in all the five ASEAN countries except Malaysia, where there is no causality between the two, at the individual level and panel level. This is because the F-statistics for these cases indicate that the null hypothesis that economic growth does not Granger cause foreign direct investment and foreign direct investment does not Granger cause economic growth are rejected at 1% significance level. That means foreign direct investment causes economic growth and economic growth causes foreign direct investment, indicating the feedback between these two variables. The evidence from this empirical analysis is very clear that foreign direct investment causes economic growth and vice versa in the case where all the five countries are included in the sample. However, this is not true, when we go for individual country analysis. That means panel data analysis is very powerful in overcoming the problem of small samples, in addition to allowing for heterogeneity in the intercepts and slopes in the cointegration and causality equations. The finding of Malaysia is not so exceptional. In fact, it is very similar to the findings of Karimi and Yusop (2009), who examine the relationship between foreign direct investment and economic growth in Malaysia over a period 1970-2005.

5. Conclusion

The present work explores the relationship between foreign direct investment and economic growth over the period 1970- 2007. Using univariate and panel cointegration, it suggests the following findings:

1. Economic growth and foreign direct investment are integrated of order one for the five ASEAN countries, namely Indonesia, Malaysia, Philippines, Singapore and Thailand, at the individual level and group level.
2. Pedroni's panel cointegration test confirmed the existence of a long run equilibrium relationship between foreign direct investment and economic growth. However, at the individual level, Johansen's multivariate cointegration test confirms the presence of cointegration only in Singapore and Thailand.
3. Granger causality test, both at the individual level and panel level, confirms the presence bidirectional causality between foreign direct investment and economic growth, both at the individual level (except Malaysia) and group level. In the case of Malaysia, we do not find any causality between foreign direct investment and economic growth.

The results suggest a high level of foreign direct investment can generate high level of economic growth and a high level of economic growth can generate high level of foreign direct investment. That means the policy implications are very straightforward. To get more economic growth, we need to bring more foreign direct investment. And to get more foreign direct investment, there is need of sustainable economic growth in the economy. The lack of foreign direct investment may constraint to economic growth and vice versa.

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Table 1. Results of Unit Root Test

	GDP		FDI		Conclusion
	LD	FD	LD	FD	
Indonesia	0.814	-4.75*	-2.34	-4.82*	1 (1)
Malaysia	1.63	-3.78*	-1.27	-7.20*	1 (1)
Philippines	1.05	-4.06*	-0.86	-7.41*	1 (1)
Singapore	1.54	-2.96**	-0.88	-7.73*	1 (1)
Thailand	0.192	-3.07*	-0.73	-6.18*	1 (1)
Panel Unit Root Test					
LLC	4.181	-2.993*	1.774	-2.921*	1 (1)
IPS	5.582	-3.935*	0.733	-5.340*	1 (1)

Note: GDP: Economic Growth; FDI: Foreign Direct Investment; LD: level data; FD: First difference LLC: LLC statistics; IPS: IPS statistics; *: indicates the variable significant at 1% significance level.

Table 2. Results of Johansen's Cointegration Test

Countries	Null Hypothesis	Trace Statistics		MEV Statistics	
Indonesia	None	12.87	[0.12]	12.87	[0.08]
	At most 1	0.001	[0.98]	0.001	[0.98]
Malaysia	None	9.77	[0.30]	6.04	[0.61]
	At most 1	3.72	[0.05]	3.72	[0.05]
Philippines	None	12.49	[0.14]	11.97	[0.11]
	At most 1	0.52	[0.47]	0.52	[0.47]
Singapore	None	17.38	[0.03]	17.14	[0.02]
	At most 1	0.24	[0.62]	0.24	[0.62]
Thailand	None	15.93	[0.04]	20.35	[0.04]
	At most 1	0.002	[0.96]	7.570	[0.96]

Note: Parentheses indicate the probability of significance.

Table 3. Results of Pedroni's Panel Cointegration Test

Test Statistics	Calculated Value	Probability
Panel v- statistic	4.357	[0.00]
Panel ρ - statistic	-3.655	[0.00]
Panel PP- statistic	-3.032	[0.00]
Panel ADF- statistic	-3.376	[0.00]
Group ρ - statistic	-2.689	[0.00]
Group PP- statistic	-3.687	[0.00]
Group ADF- statistic	-3.523	[0.02]

Note: The parentheses indicate the probability of significance.

Table 4. Granger Causality Test based on ECM

		Dependent Variables	
		GDP	FDI
Indonesia	GDP	-----	√
	FDI	√	-----
Malaysia	GDP	-----	X
	FDI	X	-----
Philippines	GDP	-----	√
	FDI	√	-----
Singapore	GDP	-----	√
	FDI	√	-----
Thailand	GDP	-----	√
	FDI	√	-----
Panel Granger			
Causality	GDP	-----	√
	FDI	√	-----

Note: √: Represents the presence of causality; X: Represents the absence of causality

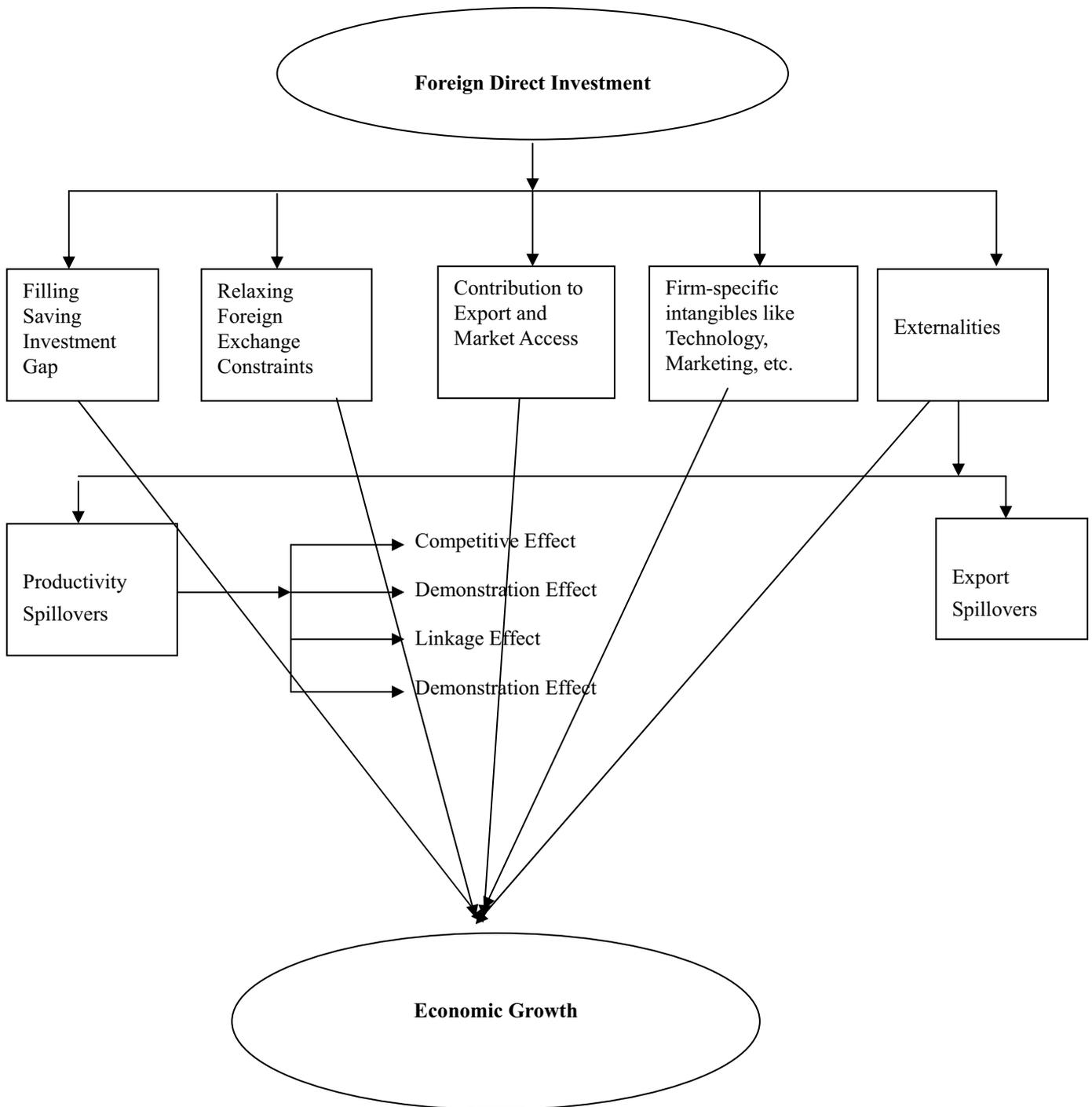


Figure 1. Linkage between Foreign Direct Investment and Economic Growth



Problems of Adoption and Application of International Financial Reporting Standards (IFRS) in Bangladesh

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Abstract

The adoption of IFRS around the world is occurring rapidly to bring about accounting quality improvement through a uniform set of standards for financial reporting. However, accounting quality is a function of the firm's overall institutional setting, including the legal and political system of the country in which the firm resides. This paper documents the prospects of IFRS adoption and their impact on the financial reporting environment of Bangladesh considering the underlying institutional and economic factors. It argues about trade-off between the scale advantage of IFRSs (designed globally by the highly sophisticated authority) and the local advantage of decentralized adaptation. It is also an effort to focus on the problems relating to adoption of IFRS in Bangladesh and to reach some concluding remarks for better applicability of accounting standards in ensuring transparent information environment.

Keywords: IFRS adoption, IAS, Accounting quality, ICAB, Bangladesh

1. Introduction

International accounting literature provides evidence that accounting quality has economic consequences, such as costs of capital (Leuz and Verrecchia, 2000), efficiency of capital allocation (Bushman, Piotroski, & Smith, 2006; Sun, 2006), and international capital mobility (Young and Guenther, 2002). Also, economic changes are likely to have similar consequences as Land and Lang (2002) document that accounting quality has improved worldwide since the beginning of the 1990s, and suggest that this could be due to factors such as globalization and anticipation of international accounting harmonization. Accounting theory argues that the purpose of financial reporting is essentially to reduce information asymmetry between corporate managers and parties contracting with their firm (Watts, 1977; Ball, 2001) and financial reporting reduces information asymmetry by disclosing relevant and timely information (e.g., Frankel and Li 2004). Because there is considerable variation in accounting quality and economic efficiency across countries, international accounting systems provide an interesting setting to examine the economic consequences of financial reporting.

Improvement in the information environment following change to IAS (Note 1) and IFRS is contingent on at least two factors. First, improvement is based upon the premise that change to IFRS constitutes change to a GAAP that induces higher quality financial reporting. For example, Barth, Landsman, & Lang (2006) find that firms adopting IFRS have less earnings management, more timely loss recognition, and more value relevance of earnings, all of which they interpret as evidence of higher accounting quality. Second, the accounting system is a complementary component of the country's overall institutional system (Ball, 2001) and is also determined by firm's incentives for financial reporting. La Porta, Lopez-De-Silanes, Shleifer, & Vishny, (1998) provide the first investigation of the legal system's effect on a country's financial system. They find that common law countries have better accounting systems and better protection of investors than code law countries.

Other factors associated with financial reporting quality include the tax system (Guenther and Young, 2000; Haw et al.; 2004), ownership structure (Ball and Shivakumar, 2005; Fan and Wong, 2002), the political system (Leuz and Oberholzer-Gee, 2006), capital structure (Sun, 2006), and capital market development (Ali and Hwang, 2000). (Note 2)

The Institute of Chartered Accountants of Bangladesh (ICAB), which is an apex body for the development of accounting profession in Bangladesh, has been working for the adoption and improvement of accounting standards. The

ICAB has a program to adopt IAS as Bangladesh Accounting Standards (BAS). The Securities and Exchange Commission (SEC) of Bangladesh requires the issuers of listed securities to prepare financial statements in accordance with the requirements laid down in the Regulation and the IASs as adopted by the ICAB.

This work concentrates on the importance of adoption and application of IFRS and problems relating thereto in a developing country like Bangladesh.

2. Objectives of the Study

The main objective of the paper is to focus on the adoption and application of IFRS and problems relating thereto. The specific objectives are-

- To portray the role of IFRS for quality accounting information;
- To study the problems regarding the adoption and application of IFRS in the context of Bangladesh.
- To present some policy recommendations for adoption and implementation of IFRS for ensuring good financial reporting.

3. Methodology of the Study

The study has been conducted mainly on the basis of literature survey and secondary information. Various journals and research papers, diagnostic study reports and newspaper articles have been surveyed in making this study. Few qualified accountants (Chartered Accountants and Cost and Management Accountants) have been personally consulted with in order to have their thoughts on the problems and solutions in this regards.

4. Overview of Adoption of IFRS

IFRS are accounting rules (“standards”) issued by the International Accounting Standard Board (IASB), an independent organization based in London, UK. Before the inception of IASB, international standards were issued by the IASB’s predecessor organization, the IASC, a body established in 1973 through an agreement made by professional accountancy bodies from Australia, Canada, France, Germany, Japan, Mexico, the Netherlands, the United Kingdom and Ireland, and the United States of America. Up to 2000, the IASC’s rules were described as “International Accounting Standards” (IAS). In fact, in 1997 after nearly 25 years of achievement, IASC recognized that to continue to perform its role effectively, it must find a way to bring about convergence between national accounting standards and practices and high-quality global accounting standards. In late 1997 IASC formed a Strategy Working Party that published a discussion paper in December 1998 and final recommendations in November 1999. The IASC Board approved the proposals in December 1999, and the IASC member bodies did the same in May 2000. The new standards-setting body was named as International Accounting Standards Board (IASB) and since April 2001, it has been performing the rule-making function. (Note 3) Components of IASB structure contain- IASB, IASC Foundation, International Financial Reporting Interpretations Committee (IFRIC), previously Standing Interpretations Committee, SIC under IASC), Standards Advisory Council (SAC) and Working Groups. The IASB is better funded, better-staffed and more independent than its predecessor. (Note 4) The IASB describes its rules under the new label “International Financial Reporting Standards (IFRS), though it continues to recognize (accept as legitimate) the prior rules (IAS) issued by the old standard-setter (IASC).

Over the years the business community has admitted that the accounting is “the language of business” and financial information is a form of language. And undoubtedly, to ensure its usefulness, financial information should not only be intelligible, but also be comparable so that investment and credit decisions can more readily be taken. Over the past few decades, the accounting profession has been facing the pressure of globalization and continuously seeking the way to present financial situations using unique accounting procedures which can be understood by the entire business community. Due to the fact that this process followed the global trends, and the globalization is first of all a political process; the starting point in creation of a unique accounting system needed to pass a difficult process where the main accounting systems will litigate to impose their accounting policies and practices. (Belkaoui,1994). Despite the difficult process Anderson (1993) said “a set of international accounting standards will allow new horizons of evolution due to the fact that comparative analysis of the rates of returns established based on the balance sheets and profit and loss account between the companies being in competition become relevant”. The comparison, as the basic form of economical judgment can be realized only if the accounting system is unique for all the companies involved in the analysis. Also harmonization is absolutely necessary because national standards of financial statements are virtually useless; financial markets in more regulated countries are threatened with a loss of market share; and multinational corporations must prepare multiple reports for different nations they do business in. (Nobes and Parker 1991). In order to accomplish this target the accounting profession developed the solutions like: the American solution GAAP or the European solution (British solution to be read) IAS/IFRS. On the backdrop of getting a single set of international accounting standards (since October 2002, the IASB and FASB have been working systematically toward convergence of IFRS and U.S. GAAP), IFRS is rapidly gaining acceptance as over 100 countries have recently moved to IFRS

reporting or decided to require the use of these standards in the near future and even the U.S. Securities and Exchange Commission (SEC) is considering allowing U.S. firms to prepare their financial statements in accordance with IFRS. (Note 5)

In particular, the European Union now requires publicly traded companies (with the exception of some firms) to present consolidated financial statements in conformity with IFRS since the financial year starting on or after 1 January 2005. Earlier since the late 1990s, firms in some European countries were allowed to use IAS as a substitute for domestic accounting standards (Soderstrom & Kevin, 2007). Other countries with prominent capital markets such as Australia, Hong Kong, Singapore and South Africa have also decided to adopt IFRS or have already adopted an accounting regime that is essentially equivalent to IFRS. The SEC has also now scheduled a timeline of transition to IFRS for US firms that want to start reporting under IFRS. (Horton et al., 2008). Many countries are replacing their national standards with IFRSs for some or all domestic companies while other countries have adopted a policy of reviewing IFRSs and then adopting them either verbatim or with minor modification as their national standards. The International Organization of Securities Commissions (IOSCO), the international organization of national securities regulators, has recommended that its members permit foreign issuers to use IFRS for cross-border securities offerings and listings. The IASB has been indefatigable in promoting IFRS at a political level, and its efforts have paid off substantially in terms ranging from endorsement to mandatory adoption, notwithstanding the doubt on converting political action into actual implementation. Many believe accounting harmonization is necessary for the globalization of capital markets (Quigley, 2007). However, clear empirical evidence of the economic consequences from mandatory adoption of IFRS has been limited (Daske et al., 2007).

IASs have become an integral part of the legal framework of Bangladesh from 1997 by the insertion of section 12(2) into the Securities and Exchange Rules 1987. The ICAB has so far adopted 29 out of 34 IASs as Bangladesh Accounting Standards (BAS). The latest summarized positions as of 17th March 2005 are as follows:

Insert [Table 1] Here

Insert [Table 2] Here

5. IFRS and Quality of Accounting Information

The fundamental economic function of accounting standards is to provide “agreement about how important commercial transactions are to be implemented” (Ball, p. 19). Ensuring disclosure quality of financial information is also mandatory for reducing information asymmetry and solving agency problem in corporate sector.

Existing literatures document improvements in accounting quality following voluntary IFRS adoption (e.g., Barth et al., 2006; Gassen and Sellhorn, 2006; Hung and Subramanyam, 2007; Barth et al., 2008) to reduce information asymmetry between managers and shareholders and it can be evidenced by proper assets and earnings management, lower cost of capital, and high forecasting capability by the investors about firm’s future earnings. Gordon (2008) listed the benefits from adaptation of IFRS over the world as-

- Better financial information for shareholders;
- Better financial information for regulators;
- Enhanced comparability;
- Improved transparency of results;
- Increased ability to secure cross-border listing;
- Better management of global operations; and
- Decreased cost of capital.

Barth et al. (2006) suggest that accounting quality could be improved with elimination of alternative accounting methods that are less reflective of firms’ performance and are used by managers to manage earnings. They compare earnings management for firms that voluntarily switch to IFRS with firms that use domestic accounting standards. They find that after IFRS adoption, firms have higher variance of changes in net income, a higher ratio of variance of changes in net income to variance of changes in cash flows, higher correlation between accruals and cash flows, lower frequency of small positive net income, and higher frequency of large losses.

Barth et al. (2006; 2008) also found that an international sample of firms that voluntarily adopted IFRS up to 2003 exhibits lower levels of earnings management and more timely loss recognition than a matched sample of firms using local GAAP. As an extension of these findings, Daske et al. (2007) focus on the heterogeneity in the consequences of voluntary IFRS adoption and find that on average capital markets respond modestly to voluntary IFRS reporting. Overall the evidence on the association between voluntary IFRS adoption and accounting quality is mixed, although papers applying more recent data generally find relatively better accounting quality among the firms that adopt IFRS. (Christensen et al. 2008). A common feature of these studies is that, much of the previous studies on IFRS compliance

relates to voluntary adopters, which by definition suffer from selection bias (Asbaugh 2001). This raises the question as to whether we can attribute the improved quality to the application of IFRS per se. That is, does the application of IFRS have an incremental effect on accounting quality, or is the observed quality improvement a result of other changes implemented simultaneously by the adopting firms? In a concurrent study, Daske et al. (2007) examine the capital market effects of mandatory IFRS adoption. They find evidence that is consistent with reduced information asymmetry in association with mandatory IFRS adoption. They argue that the effect could be driven by network effects rather than accounting quality improvements. In a similar spirit, Lee et al. (2008) argue that if IFRS matters, then firms in countries that had lower disclosure quality and dependence on equity financing prior to mandatory IFRS should experience a greater impact after mandatory adoption. However, using implied cost of equity capital as an indicator, they find no effect among such countries even after two years under the new accounting standards.

By eliminating many international differences in accounting standards, and standardizing reporting formats, IFRS eliminate many of the adjustments that analysts historically have made in order to make companies' financial information more comparable internationally. IFRS adoption therefore could make it less costly for investors to compare firms across markets and countries (e.g., Armstrong et al., 2007; Covrig, Defond, and Hung, 2007). Thus, a common set of accounting standards would reduce information asymmetries among investors and/or lower estimation risk by increasing comparability between lower and higher quality firms. The gain would be greatest for institutions that create large, standardized-format financial databases. Similarly, accounting diversity could be an impediment to cross-border investment (Bradshw, Bushee, and Miller, 2004). Thus, reducing international differences in accounting standards assists to some degree in facilitating international integration of capital markets (Covrig, Defond, and Hung, 2007) by removing barriers to cross-border acquisitions and divestitures, which in theory will reward investors with increased takeover premiums (See Bradley, Desai and Kim, 1988).

Bushman, Piotroski and Smith (2006) report evidence that firms in countries with timelier financial-statement recognition of losses are less likely to undertake negative-NPV investments. The increased transparency and loss recognition timeliness promised by IFRS therefore could increase the efficiency of contracting between firms and their managers, reduce agency costs between managers and shareholders, and enhance corporate governance. Increased transparency causes managers to act more in the interests of shareholders.

To signify the effect of IFRS on investors' ability to forecast earnings; some researchers argue that better accounting standards make reported earnings less noisy and more accurate, hence more "value relevant." (e.g., Ashbaugh and Pincus (2001), Hope (2003)). Other things equal (for example, ignoring enforcement and implementation issues for the moment) this would make earnings easier to forecast and would improve average analyst forecast accuracy. Though some researchers (e.g. Ball, Kothari and Robin (2000) and Ball, Robin and Wu (2003)) thought oppositely that managers in low-quality reporting regimes are able to "smooth" reported earnings to meet a variety of objectives, such as reducing the volatility of their own compensation, reducing the volatility of payouts to other stakeholders (notably, employee bonuses and dividends), reducing corporate taxes, and avoiding recognition of losses. In contrast, earnings in high-quality regimes are more informative, more volatile, and more difficult to predict. This argument is bolstered in the case of IFRS by their emphasis on "fair value accounting" (FVA). FVA aims to incorporate more-timely information about economic gains and losses on securities, derivatives and other transactions into the financial statements, and to incorporate more-timely information about contemporary economic losses ("impairments") on long term tangible and intangible assets. IFRS promise to make earnings more informative and therefore, paradoxically, more volatile and more difficult to forecast.

In a developing economy like Bangladesh, we can figure out the following prospects that may accrue by the adoption of IFRS:

1. The adoption may have some direct impact on the corporate sector. Agency problem between management and shareholders can be substantially reduced through implementation of IFRS as increased transparency causes managers to act more in the interests of the shareholders (see Watts, 1977; Watts and Zimmerman, 1986). The increased transparency promised by IFRS also could cause a similar increase in the efficiency of contracting between firms and lenders. The increased transparency and loss recognition timeliness promised by IFRS could increase the efficiency of contracting in debt markets, with potential gains to equity investors in terms of reduced cost of debt capital.
2. The vulnerability of small investors is a long time established problem and undoubtedly it is a big impediment for the stock market development in Bangladesh. Small investors are less likely than investment professionals to be able to anticipate financial statement information from other sources. IFRS adoption could reduce the cost of investors of processing financial information. Improving financial reporting quality allows the small investors to compete better with professionals, and hence reduces the risk they are trading with a better-informed professional (known as "adverse selection"). (Note 6)
3. Another improvement of adopting IFRS to reduce information asymmetry in the corporate sector can arise due

to its emphasis on fair value accounting (FVA). Most economists argue that fair value incorporates more information into the financial statements than historical costs. Though other conditions in Bangladesh are not favorable for implementing FVA (like achieving observable market prices or independently observable, accurate estimates of liquid market prices that cannot be materially influenced by managers due to less perfect market liquidity), still FVA can make financial statements more informative, with potential advantages to investors, and if enforceable more useful for purposes of contracting with lenders, managers and other parties (see Ball, Robin and Sadka (2006). IFRSs are instilled into FVA. Particularly as listed (Ball 2005):

IFRS 2 requires share-based payments to be accounted at fair value;

IFRS 3 provides for minority interest to be recorded at fair value;

IAS 16 provides a fair value option for property, plant and equipment;

IAS 36 requires asset impairments (and impairment reversals) to fair value;

IAS 38 requires intangible asset impairments to fair value and some others;

IAS 39 requires fair value for financial instruments other than loans and receivables that are not held for trading, securities held to maturity; and qualifying hedges (which must be near-perfect to qualify); (Note 7) and IAS 40 provides a fair value option for investment property.

4. Apart from these, adoption of IFRS in Bangladesh can reduce accounting diversity thus will encourage the foreigners for cross border investment which in turn may improve the liquidity of the capital markets and enlarge firm's investor base to improve risk-sharing and lowers cost of capital (e.g. Merton, 1987).
5. Prevailing local GAAP is not enough to ensure proper disclosure quality and there are ambiguities among numerous rules, guidelines and notifications that are often self-contradictory and perplexing to one another. Mandatory adoption of IFRS will reduce such vagueness and create more binding on the firms to perform their disclosure responsibility (e.g., Ding et al, 2007; Bae, Tan and Welker, 2008 evidence that IFRS are more comprehensive than most local GAAP).

Since the early 1980s, various bilateral and multilateral agencies have been playing an active role in the diffusion of Western accounting standards to the developing world (see Rahaman and Lawrance, 2001; Neu et al., 2002). Bangladesh, as a country hugely dependent on foreign aid and also a participant of globalization trend, has been facing the urgency of different global community for adopting IASs/IFRSs to ensure accountability and transparency in financial reporting.

Accounting profession is seeking to adopt all applicable IASs (see Institute of Cost and Management Accountants of Bangladesh, 1999, p. 12) but such decision is continually driven by institutional legitimization rather than careful appreciation of the differing contextual variables in Bangladesh (see, Susela, 1999; Points and Cunningham, 1998). In fact, after a long period without any involvement or interference with the practice of accounting, the government of Bangladesh, in response to the immense pressure by the international lending/donor agencies to standardize financial reporting, has started lobbying the accounting profession to adopt all applicable IASs/IFRSs for use in Bangladesh (ICMAB, 1999). The accounting profession in Bangladesh is mainly controlled by two main accounting professional bodies, the Institute of Chartered Accountants of Bangladesh (ICAB) and the Institute of Cost and Management Accountants of Bangladesh (ICMAB) established in 1973 and 1977 respectively whose structures are "modeled on the United Kingdom" system (Parry and Grooves, 1990, p. 119). Both organizations have the vision of establishing standard accountancy practices in Bangladesh through developing and recognizing highly qualified professional accountants in the country.

The next section focuses on some prevailing problems that are deterring IFRS adoption in Bangladesh or hindering the achievable benefits from IFRS after being adopted.

6. Problems with IAS Adoption Process

In Bangladesh, the IASs adoption process was initiated in August 1999 following a World Bank grant to the Bangladeshi Government for the development of Accounting and Auditing Standards in Bangladesh. The grant was targeted at enhancing the institutional capacity of the ICAB for the adoption of IASs in the country. The Government then delegated the process to the Securities and Exchange Commission (SEC) as the main institution responsible for overseeing the process.

Although it appears like the adoption of IASs was kicked off by SEC, actually effort was initiated by the international agencies and the whole process eventually transformed into a political exertion (See Mir et al, 2005, p. 826). The SEC empowered the ICAB to adopt those standards specified by the SEC and the Government of Bangladesh. At present, a committee named "Research and Technical Committee (TRC)" under the ICAB is working to give acceptance to the IASs for adoption in Bangladesh. The committee comprises of thirteen members and all of them are Chartered

Accountants. That means, despite the existence of two professional bodies in the country the ICAB is recognized “as the sole authority in Bangladesh for adoption of International Accounting Standards and International Standards on Auditing” (ICAB Circular 1/15/ICAB – 99, September 1999). The ICAB’s stand on this regard can be clearly obtained in the statement:

The ICAB was one of the first Institutes in the South Asia region to start adopting IASs. Over the years, the ICAB has followed a regular approach to adoption of new Standards, after a process of stringent technical review and considering their applicability to Bangladesh. (Note 8)

It may be noted that in many countries (the USA, the UK, India, Sri Lanka etc.) of the world, different concerned groups like professional accountants, bank representatives, academicians, employed accountants, representatives from chamber of commerce and industry, representatives from different regulatory bodies etc. are involved in the development and/or acceptance process of accounting standards. Even if we discard the fact that inclusion of different interest-groups into the committee could bring significant improvement to standards adoption/development process and believe that ICAB as a sole authority is performing well, the problem does not end here. As the general perception is:

After standards are reviewed and adopted, the ICAB labels them “Bangladesh Accounting Standards (BASs)” notwithstanding that most of these standards are carbon copies with the same numbers as the original IASs. (Mir et al, 2005, p. 826)

General remarks of the highly interested but non-inclusive groups (e.g., cost and management accountants, academics, and business leaders) also support the statement. A common view among them was that wholesale importation of the highly sophisticated rules like IASs is not suitable for the less sophisticated economic and regulatory structure of Bangladesh (See Mir et al, 2005, p. 835). Most of chartered accountants we consulted with also expressed their doubt on suitability of wholesale adoption of IFRS in Bangladesh but showed their favor for ICAB as a sole authority for such adoption.

Another problem lies on ambiguity of role and responsibility of the SEC and the ICAB. Once the adoption process is over the SEC then has the responsibility, as delegated by the Government of Bangladesh, to monitor compliance with these standards by listed companies. According to the Sec 12 (2) of the Securities and Exchange Rules 1987, ‘the financial statements of an issuer of a listed security shall be prepared in accordance with the requirements laid down in the Schedule and the International Accounting Standards/IFRSs as adopted by the Institute of Chartered Accountants of Bangladesh’. That is, all the responsibilities of IAS adoption process lie with the ICAB. The SEC does not participate in the process though it is the top regulatory body in Bangladesh for enforcement of IASs/IFRSs in the listed companies. Here it may be noted that the US SEC has the authority to set accounting standards for companies, but always has delegated the responsibility to the accounting profession, a strong and independent standards setting body like FASB. Most importantly, the US SEC delegated only the responsibility, not the authority, to set standards and if it does not agree with a particular standard issued by the private sector, it can force a change in the standard (See Spiceland et al, 2004, p. 9). It is clear that, in Bangladesh, SEC lacks expertise to formulate standards which led them to delegate the responsibility to the ICAB.

From a diagnostic review carried out in Bangladesh on accounting and auditing in January –March 2003, the World Bank’s Report on the Observance of Standards and Codes (ROSC) Bangladesh states that, the accounting and auditing practices in Bangladesh suffer from institutional weaknesses in regulation, compliance, and enforcement of standards and rules. In many cases, the preparation of financial statements and conduct of audits are not consistent with IASs and international auditing practices. (Note 9) About standard setting and auditing standards this report reveals:

As the professional body of accountants, ICAB regulates its members; however, it has no legal mandate for setting accounting standards. Despite that, ICAB develops and issues BAS, which are not legally binding by corporate management. The ICAB expects its members, who prepare and audit financial statements, to observe the local standards.

That means though SEC in Bangladesh is directing the listed companies to follow IASs adopted by the ICAB vide Sec 12 (2) of the Securities and Exchange Rules 1987, such direction is not creating any legal binding on the corporate management, as evidenced by the ROSC.

The ROSC revealed the necessity of enacting of “a new Financial Reporting Act and the repeal of the provisions on accounting, auditing, and financial reporting in Companies Act 1994, Bank Companies Act 1991, Insurance Act 1938, and other related regulations.” This recommendation is appreciable because such initiative may substantially eliminate all conflicting issues among the prevailing regulations and pronouncements and undoubtedly, it will be easy to update accounting, auditing, and financial reporting requirements from time to time by simply amending the single act for financial reporting. The ROSC advocated that the proposed Financial Reporting Act should focus on making legal arrangements to “fully adopt IAS/IFRS/ and ISA without modification and ensure mandatory observance of these standards” (ROSC, 2003, p.11).

The ROSC also recommended establishment of a Financial Reporting Council under the proposed Financial Reporting Act in order to adopt, without modification, all IASs, and ISAs, and IFAC-issued Code of Ethics for Professional Accountants, for observance by the public interest companies with respect to financial reporting” (ROSC, 2003, p.12). Ensuring mandatory observance of IFRS and ISA will be beneficial but the issue of carbon copy adoption of all IAS/IFRS and related interpretations issued by the IASB without modification calls for consideration. As Wallace and Briston (1993, pp. 216-217) argued that accounting and accountability problems would be unique to each developing country and donor agencies should collaborate more closely with the recipient country to ensure that their assistance is delivered only in accordance with the respective national accounting development plans.

In October 1999, the Ministry of Commerce issued a memorandum proposing the establishment of Bangladesh Accounting and Auditing Standards Monitoring Board which should involve all interested parties (ICAB, 1999, p. 19; ICMAB, 1999, p. 12). This proposal was rejected by ICAB which perceives itself as “the only competent legal authority in the country to adopt IAS . . . and there was no justification whatsoever for formation of the proposed Bangladesh Accounting and Auditing Standards Monitoring Board”, (ICAB Annual Report, 1999, p. 19). This proposal is still under consideration by the government of Bangladesh and the ICMAB have started to actively lobby the World Bank Team for the establishment of the Board. (ICMAB, 2003, pp. 31-33). Some members of the ICMAB expressed dissatisfaction on grounds that the responsibility for adoption of IASs should have been delegated to an accounting standard setting committee, as in most countries, with representative members from both bodies and other interest groups such as academics and corporate leaders. (See Mir et al, 2005, p. 829).

8. Recommendations and Concluding Remarks

Ensuring high-quality corporate financial reporting environment depends on effective enforcement mechanisms. Merely adopting international accounting and auditing standards is not enough. Three important links exist in the enforcement sequence: (a) directors and top management must ensure that financial statements are prepared in compliance with established standards; (b) auditors must act independently and judiciously to ensure that financial statements comply with applicable accounting standards and represent a true and fair position of the enterprise’s financial condition; and (c) regulators, both self-regulatory organizations and statutory regulators, must implement arrangements for efficient monitoring of regulatory compliance and consistently take appropriate actions against violators. (ROSC, Sri Lanka-Accounting and Auditing; P 14). To do these we have the following recommendations.

- **Establishment of Financial Monitoring Board:** The government is under the process of establishing an independent oversight body named “Financial Reporting Council” to shoulder the responsibility of setting accounting and auditing standards, monitoring compliance with accounting standards, reviewing auditors’ practice and reviewing reporting practices and enforcing sanctions for violations. The government should ensure capacity and effectiveness of this regulatory regime to provide a real sense of security to stakeholders. The board should focus on technically qualified personnel, practical training of inspectors/reviewers, administrative support, and necessary logistics arrangements. The IFRS enforcement bodies (the SEC and the Bangladesh Bank) should immediately enhance their expertise.
- **Inclusion of other interested parties:** A system for adoption of standards and monitoring should be developed that can work on a consensus view of all the interested parties. Apart from that, Exposure Drafts are to be circulated for comments from various professionals and the general public at large. This often has the result of minimizing dissension and thus increasing acceptance of accounting standards developed by the committee (Hove, 1990).
- **Encouraging the firms for adopting IFRS:** On the basis of proper compliance of IFRS, the regulatory authorities can provide significant benefits (like, firms reporting regularly complying IFRS and other necessary requirement will have relax listing criteria or incentives in either monetary or non-monetary forms).
- **Role of government:** The government should introduce an awareness program for improving the degree of compliance with accounting requirements by specified business enterprises. Authorities like the ICAB, the ICMAB, the SEC and Bangladesh Bank should work jointly to design an awareness program on the importance of compliance with accounting and auditing requirements.
- **Upgrading accounting education:** In order to ensure a minimum quality standard in teaching accounting and auditing courses in all Bangladeshi universities, an initiative is necessary for curriculum development and training-the-trainers activities.

We must determine the area of trade-off between the scale advantage of IASs (designed centrally/globally by the highly sophisticated authority) and the local advantage of decentralized adaptation. (Note 10) Government should take a bold step. From regulatory perspective, self-regulation is the answer which will ensure de jure and de facto compliance. Awareness should contribute to that process. Only enforcement mechanism will not help the procedure if some firms are forced to do something against their will. In fact, the adopters must change their intuitive behavior of following a “tick-box” attitude (Daske et al., 2007) and also must not adopt IFRS just like a costless free good.

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Notes

Note 1. IASs were issued between 1973 and 2001 by the International Accounting Standards Committee (IASC). In April 2001 the International Accounting Standards Board (IASB) took over the roles of the IASC and adopted all IAS and continued the development, calling the new standards IFRS. Terminologically, IAS(s) and IFRS(s) are often used in an interchangeable way.

Note 2. There are many alternative definitions and measures of quality in the accounting literature. For example, Francis et al. (2004) summarize seven common earnings attributes that are often associated with earnings quality (associating these attributes with firms' cost of capital). We do not offer an exhaustive summary of this literature since there are a number of excellent recent surveys, including Schipper and Vincent (2003) and Dechow and Schrand (2004).

Note 3. The IASB is organized under an independent Foundation named the International Accounting Standard Committee Foundation (IASCF) which is a not-for-profit corporation created under the laws of the State of Delaware, USA, on March 2001.

Note 4. The background and chronology of IASB structure can be found at <http://www.com/restruct/restruct.htm>

Note 5. www.sec.gov/news/press/2007/2007-145.htm

Note 6. See Glosten and Milgrom (1985), Diamond and Verrecchia (1991) and Leuz and Verrecchia (2000), Verrecchia (2001), Lambert, Leuz and Verrecchia (2007).

Note 7. Available-for-sale securities are to be shown at Fair Value in the Balance Sheet only.

Note 8. See Bangladesh Financial Reporting Standards (BFRS), Vol-1, October 2008, published by the ICAB, Foreword by the president of the ICAB Md. Humayun Kabir FCA.

Note 9. See Executive Summary of Report on the observance of standards and codes (ROSC), Accounting and Auditing, May 16, 2003. Can be retrieved from http://www.worldbank.org/ifa/rosC_aa_bgd.pdf

Note 10. "The analogy with McDonald's is instructive: the corporation designs the basic rules centrally (product line, logos, packaging, service and cleanliness standards, etc.) and the store managers and franchisees implement them locally (hiring and firing employees to satisfy service standards, etc.)" (Ball, 2008)

Table 1. Summary of adoption of IASs in Bangladesh

Sl. No.	Subject	IASs in Number	IASs Number
1	Existing number of IASs developed by IASC, IASB	34	
2	Withdrawn by IASB	01	IAS-15
3	IASs not applicable to Bangladesh Context	01	IAS-29
4	Total effective IAS	32	
5	IASs adopted in Bangladesh as BAS	31	1,2,7,8,10,11,12,14,16,17,18,19,20,21,23,24,26,27,28,30,31,32,33,34,35,36,37,38,39,40 & 41.

Sources: The Institute of Chartered Accountants of Bangladesh (ICAB).

Table 2. Adoption status of IFRSs

IFRS No.	BFRS No.	Effective Date
IFRS 1	BFRS-1: First-Time Adoption of Bangladesh Financial Reporting Standards	An entity shall apply this BFRS if its first BFRS financial statements are for a period beginning on or after 1 January 2009.
IFRS 2	BFRS-2: Share-based Payment	For annual periods beginning on or after 1 January 2007. Effective date of 2008 amendments (paragraph 21A and 28A) will be 1 January 2010.
IFRS 3 (supersedes IAS 22)	BFRS-3: Business Combination	On or after the beginning of the first annual reporting period beginning on or after 1 January 2010. If an entity applies this BFRS before 1 January 2010, it shall disclose that fact and apply BAS 27 (as amended in 2008) at the same time.
IFRS 4	BFRS-4: Insurance Contracts	For annual periods beginning on or after 1 January, 2010.
IFRS 5	BFRS-5: Non-current Assets Held for Sale and Discontinued Operations	For annual periods beginning on or after 1 January 2007.
IFRS 6	BFRS-6: Exploration for and Evaluation of Mineral Resources	For annual periods beginning on or after 1 January 2007.
IFRS 7	BFRS-7: Financial Instrument: Disclosures (This BFRS supersedes BAS 30 Disclosures in the Financial Statements of Bank and Similar Financial Institutions)	On or after the beginning of the first annual reporting period beginning on or after 1 January 2010.
IFRS 8	BFRS-8: Operating Segments. (This BFRS supersedes BAS 14 Segment Reporting)	On or after the beginning of the first annual reporting period beginning on or after 1 January 2010.

Source: The Institute of Chartered Accountants of Bangladesh (ICAB).



Independent Director System: An Assistant Mechanism of Corporate Governance

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Abstract

As a system arrangement of the corporate governance, the independent director system has many deficiencies such as the residual claimant right doesn't correspond with the control right, the information occupations are not symmetric, the time and energy are not deficient, and the encouragement is not sufficient. In the practice that China introduces the independent director system, many obstacles such as the deficient legal references, and the shareholding structure of "dominant shareholder", and the incompatibility with the supervisory board, deficient talents, and immature market mechanism still exist. So the introduced independent director system is only a kind of assistant mechanism of corporate governance, and it can not completely improve nonstandard corporate governance and protect small investors' benefits in listed companies.

Keywords: Corporate governance, Independent director, Supervisory board, Insider control

Independent directors are not controlled by the dominant stockholders and the management personnel of the company, so they can effectively balance the dominant stockholders and supervise the management personnel to ensure that the director board will consider all shareholders' benefits and reduce the insider control and the operation of big shareholder, and effectively protect small shareholders' benefits. In August of 2001, China's Securities Regulatory Commission issued the "Establishment of Independent Director Systems by Listed Companies Guiding Opinion", that meant that as the important system to standardize and perfect the governance structure of listed company and protect small investors' benefits, the independent director system has seriously and actively entered into Chinese listed companies. At present, the introduction of the independent director system has exerted certain functions to develop and standardize the listed companies. However, the independent director system still has many congenital deficiencies, and there are many obstacles in the practice to introduce the independent director system.

1. Theoretical Deficiencies of the Independent Director System: Uneasy "Independence" and Difficult "Directions"

Theoretically, the independent director system has many deficiencies such as the residual claimant right doesn't correspond with the control right, the information occupations are not symmetric, the time and energy are not deficient, and the encouragement is not sufficient.

1.1 Residual Claimant Right Doesn'T Correspond with the Control Right

One good system arrangement is that the residual claimant right should correspond with the control right as possibly, i.e. the person who holds the residual claimant right and assumes risks should possess the control right. Contrarily, the person who holds the control right should assume the risks. It is difficult to introduce the independent director without the residual claimant right to supervise the inside directors (management personnel) who are the also the agents. Here, the residual claimant right and the control right are not corresponding, and the independent directors with the control right have not the residual claimant right and assume the risks, i.e. the distribution of the right and the responsibility (risk) is not symmetric, and the control right is also a kind of "cheap voting right", which certainly can not solve various agent problems, but only generate new agent problems and produce larger moral risk, even the first-class agents (independent directors consigned by shareholders) will collude with the second-class agents (the management personnel consigned by the director board except inside directors, i.e. the management personnel consigned by the independent directors) to damage the shareholders' benefits, and these shareholders will assume risks and possess the residual

claimant right and the control right.

1.2 The Information About Independent Directors is Not Complete or is Easily Misdirected by the Management Personnel

Independent directors don't participate in the management of the company, and they only know the situation of the company by the introduction of the management personnel or the finance reports. That is to say, the "independence" of independent directors is embodied in that they don't participate in the management or know the company according to the views constituted by the management personnel in advance. In the situations that the information is not symmetric and the contract is not complete, two behaviors of the management personnel will influence the judgment of independent directors. The first behavior is the incomplete or ill-natured information disclosure said by Williamson, especially the information disclosure with intentional misguidance, distortion, covering, and confusion. The other behavior is the non-fraudulent information misguidance or incomplete information offering said by Alchain, i.e. the large miss of information disclosure, which largely influences that the independent directors achieve really independent judgment. Under this situation, independent directors can not really effectively supervise the behaviors of the management personnel.

1.3 The Time and Energy Needed by the Supervision are Deficient

Because most independent directors are successful people with busy business, quite social status, and professional skills, it is difficult for them to pay more attention to the company. In addition, the business of modern company is more and more complex and professional, and independent directors have not sufficient time and energies to deeply know the listed company, and their judgments only depend on general experiences, common senses, and sensitive commercial brains, not concrete professional knowledge, which will certainly influence the effectiveness that independent directors make effective decisions.

1.4 The Encouragement is not Sufficient

If independent directors are required to work actively by legal responsibility, they should obtain the salary corresponding with the obligation what they assume. The salary of independent directors makes them in an embarrassing situation, i.e. the encouragement is more deficient, they will lack in more drives to work, but the encouragement is more sufficient, he will not be more independent. Because if the supervision objects of independent directors decide the salary of independent directors, their independence will certainly be suspected, and their independent supervision will certainly be impacted.

In fact, whether for the selection and appointment of independent directors or for the amount of salary in the listed company controlled by the dominant shareholder, everything is decided by the dominant shareholders' will as the name of the director board. So it is easy to be "independent vase" for independent directors, and it is difficult to realize "independent" supervision. From the practice of the independent director system in US, independent directors often could not effectively supervise the duty of the management personnel and stop improper behaviors damaging shareholder's normal benefits, and the company which independence was enhanced had not improved the governance level and performances. Even in some opinions, "the establishment of the independent director system gives a seemly just reason for the controlling shareholders damaging others' benefits to protect themselves".

2. Deficiencies that China Introduces the Independent Director System: Various Obstacles

In the practice that China introduces the independent director system, various obstacles such as the deficient legal references, and the shareholding structure of "dominant shareholder", and the incompatibility with the supervisory board, deficient talents, and immature market mechanism still exist.

2.1 Lacking in the Support of Relative Laws

The existing laws such as the Company Law and Chinese Securities Law have not give independent directors real space and conditions, i.e. the special voting right, and the amount of independent director doesn't occupy the dominant status, so they belong to the weak group, and they are difficult to balance the inside directors in the company essentially. But in US, depending on laws, i.e. the "emperor's sword", independent directors can change their individual wills into the will of the director board even the whole company.

2.2 The Equity Structure of "Dominant Shareholder"

The listed companies in US and UK are in the market-oriented securities market, and the equity structure is very loose. The largest shareholders in US companies are some institutional investors which often hold 1% of shares of the company at most in one special company, so they have very limited voice. And according to the Investment Company Act of 1940, the stocks holding by the life assurance companies and mutual funds must be decentralized, which induces high fluidity of the equity of US companies. Because the amount of small shareholders in US companies is numerous, the issue of "hitchhiking" occurs in the supervision of company. Therefore, in US and UK, the independent director system is established to supervise, and all supervision costs are shared equally by all shareholders. At present, the

company governance structure of China is the high centralization of equity, and the state stock generally occupies the control status, and though the director board is generated by the general meeting of shareholders, but the controlling shareholders have absolute power. At the same time, the management personnel are appointed by the director board, of course, and are decided by the controlling shareholders' will. So the insider control in Chinese listed companies is the "insider control in transformation", which is essentially different with the insider control induced by the equity decentralization of US and UK, and the solving methods and measures are different. Nowadays, the main issue in Chinese corporate governance is that the controlling shareholders invade and occupy the assets of listed companies and small shareholders' benefits by various measures such as the association trading, assurance, receivable account, and replacement of assets. To solve the issue of insider control, the new "outsider" should be established by the reform of the property right system.

2.3 The Introduction of the Independent Director System is not Compatible With the System of the Supervisory Board

The independent director system is generated in the countries with the common laws, and the equity structure in the corporate governance of these countries generally adopts the director system structure of "united system", and there is no independent supervisory board in the corporate institution setting, so to strengthen the independence of the director board, the independent director system is introduced to try to improve the supervision mechanism in the existing frame of "monolayer system" and make the director board can implement the supervision responsibility for the management personnel, return the control right of shareholders, and balance the insider control. For the corporate legislation, China adopts the "binary" structure organization system in the civil law system, i.e. establishing the director board and the supervisory board under the general meeting of shareholders, which respectively exert the decision-making right and the supervision right. The supervisory board specially maintains shareholders' benefits, supervises the director board to carry out the decisions of the general meeting of shareholders, and supervises directors and managers. According to the opinions of the system economics, the function of system design is to reasonably define the boundaries of rights, and only the boundaries of rights are clear, the responsibilities can be confirmed, and the costs of system operation and the exterior effects can be reduced. But at present, if the responsibilities of the supervisory board and the independent directors are not clear, the disputations between two institutions may reduce some supervision performances to zero. So it is worthy to discuss the problem how the rights of independent directors and the supervisory board are divided.

2.4 The Talents of Independent Director are Deficient

The development of independent directors needs many high-quality talents with professional knowledge and ethics. At present, most independent directors appointed in Chinese listed companies are technical experts, which is because that the talents with professional knowledge and ethics are deficient. For the talent selection, the existing and potential independent director candidates have not been trained and educated professionally. The main function of independent directors is to perfect the corporate governance structure of the company, and it is not enough to make the technical experts mastering the main business of the company to shoulder independent directors, and especially under the situation that the equity structure is not reasonable, the listed companies need not only technical experts to advise for the development strategy of the company, but also relative objective independent directors to supervise and balance the corporate governance, capital operation, and enterprise management of the company, and accordingly the intention to perfect the corporate governance structure and protect small investors' benefits can be achieved. So it is urgent to choose and train the talents of independent directors.

2.5 The Market Selection Mechanism and the Evaluation System Have not Been Formed

For the drive source of the exertion of the independent director system, one explainable cause is the reputation mechanism, because once the independent directors would present quite independence and objectivity in listed company, their reputations will be largely protected and enhanced virtually and develop their future market. In the market economy, the formation and perfection of the market selection mechanism and the market evaluation system are the premise and essential assurance of the exertion of the independent director system. In the present stage, because the establishment and cultivation time of Chinese market economic system is short, and its perfection still needs a long time, and at the same time, the generation of the manager market, especially the manager market with high competition, still started, and the source of entrepreneur is very deficient. Correspondingly, the independent directors relatively lack in the experiences of the enterprise management, and almost the "business reputation" system of independent directors doesn't exist. Under the situation that many agent institutions such as CPA, securities traders and laws all lack in reputations and cheat investors, it is very difficult to make independent directors to exert the function of supervision. At present, whether for trying to exert the right of supervision or for cheating small investors, as rational independent directors, they may cheat together or do nothing.

3. Conclusions and Advices

The independent director system has certain limitation, so it is a kind of assistant mechanism of corporate governance for ever. Even in the US with successful experience of the independent director system, because independent directors

lack in the target of shareholder benefit maximization, its supervision behaviors are limited by time and information, and the independent function of independent directors are often challenged. At present, in Chinese listed companies, the independent director system is a kind of governance mechanism only when the function of the supervisory board is weak and the director board loses control, and it belongs to one part of the original corporate governance structure, and it is the supplement or local adjustment of original governance structure. Therefore, the independent director system should not be expected to solve all problems in corporate governance.

3.1 Strengthening and Perfecting the Supervisory Board

For Chinese listed companies, it is more important to strengthen and perfect the composing and running mechanism of the special supervision institution, i.e. the supervisory board, and exert the supervision function of the supervisory board. After all, as the supervision mechanism established in the stock companies, the supervisory board could prevent, standardize and supervise some illegal behaviors, and try to solve problems by the interior mechanism of the company, which can not only enhance the efficiency of solving problems, but save the social costs and resources. In addition, to solve problems by interior mechanism can also shield the disputations of the company, and avoid influencing investors' confidences and the image and reputation of the company, and prevent that some commercial secrets are discovered in disputations, investigations of exterior powers, or lawsuits.

3.2 Improving the Independent Director System With the Reality of the Listed Company

It may be difficult to "improve the governance structure of listed company and protect small investors' benefits" only by the introduction of the independent director system. To achieve this intention, the equity structure of "dominant shareholder" of listed structure should be changed first. The equity structure of "dominant shareholder" is the hotbed to generate "insider control", damage state and enterprise and small shareholders' benefits, and induce the management corruption, and the system obstacles to push the independent director system. For the listed companies, they should seek strategic investors, gradually increase the circulation proportion of state shares and corporate shares, and reduce the stock proportions of the country and the artificial persons by various modes. For new listed companies, the country should confirm the share upper limit of state shares and controlling shareholders according to the dominant industries and characters and the requirements of industrial policies, to make listed companies to decentralize the equity and establish the system base for the exertion of the independent director system. Second, the employment qualification and ability of independent directors should be regulated specifically. Third, the personnel with high quality who are competent for the independent directors should be cultivated and selected, not the part-time "vases" in name only. Fourth, the professionalism of independent directors should be implemented to really solve the problems such as deficient energy and asymmetric information existing in the independent director system. Fifth, the encouragement and limitation mechanism of independent director should be established and perfected. Sixth, the independent director association and the independent director firm should be established to strengthen the self-discipline supervision and management of independent directors. Seventh, the market selection mechanism and the evaluation system of independent directors should be formed and perfected. Eighth, beating power to legal behaviors in listed companies should be strengthened, and relative institutions should not only claim the delisting the listed company, but strictly trounce the illegal behaviors of damaging small investors' benefits and increase the illegal costs. Ninth, using the complaints of consumers' benefits and rights as references, the small investor benefit complaint system should be established to extensively exert small investors' supervisory function to listed companies.

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Appraisal of the Impact of Team Management on Business Performance: Study of Metro Mass Transit Limited, Ghana

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Abstract

This paper examines the impact of team management on business performance using Metro Mass Transit (Ghana) Limited as a reference point. The study was carried out in Accra, the administrative seat of Ghana and Takoradi. Copies of questionnaire were administered in the study area to generate primary data. The descriptive analysis technique using percentages and table presentations were used to analyze the collected data.

The study indicated that team management is an essential strategy needed to aid business performance; it is also an important tool which helps in improving business performance and productivity that can lead to business prosperity. Furthermore, the study revealed that individualism is a major hindrance to organization productivity. Lastly, the study recommends that for any organization to survive, maintain its sustenance in today's global business change, and be successful, effective team management will be a highly needed strategy.

Keywords: Team management, Business performance, Productivity, Business organization, Business prosperity

1. Introduction

Teamwork is the concept of people working together cooperatively, as in sales team, sports team etc. It has also become so valued that many large corporations have developed specific tests to measure potential employee's teamwork ability. Hence, it has become important goal in most work places, the belief is that teamwork gives employees a sense of ownership and encourages cooperation (Adeleke, 2008).

Team has been around for as long as anyone can remember and there can be few organizations that have not used the team in one sense or another. It is common to hear of management teams, production teams, service team or even whole organizations being referred to as teams that is, many organization today are moving towards "team based" approach to work, this means that working in teams is the basic method used to get work done in these organizations. As a result, employers stress the importance of employees working as a team and advertise for staff with the ability to work in such a way (Richard, 1991). McShone (1998) said that teams are replacing individuals as the basic building blocks of organization - French language television programs has shifted to team-based projects and giving more recognition to teams than to individuals. Companies are not just looking for technical ability but looking for people who can work on teams and solve problems.

According to Steiner (1972) teams and teamwork are not novel concepts; teams and team thinking have been around for years at companies such as Procter and Gamble; and Botany. In the 1980s the manufacturing and auto industries embraced a new team-oriented approach when United States firms retooled to combat Japanese competitor who were quickly gaining market share. Brown et al (1996) examined that managers discovered the large body of research

indicating that teams can be more than the tradition corporate structure for making decisions quickly and efficiently. He further said that teams needed for the restructuring and reengineering processes of the future giving instances that simple changes like encouraging input and feedbacks from workers on the line make dramatic improvements.

This study was therefore designed to appraise the impact of team management on business performance using Metro Mass Transit Limited, Ghana as a case study. Specifically, the study attempted to:

- (i) Examine the efficacy of team management towards better organizational performance as against individualism.
- (ii) Asses the linkage between team management and customer satisfaction.
- (iii) Examine the essentiality of team management in organization's productivity.
- (iv) Make deductions on how team management can enhance team performance and productivity.

2. Literature Review

Thompson (2000) defined team as a group of people who are interdependent with respect to information, resources and skills and who seek to combine their efforts to achieve a common goal. He further stressed that team have five keys defining characteristics. First, team exists to achieve a shared goal; simply put, teams have work to do. Team produces outcomes for which members have collective reward. Second, team members are interdependent regarding some common goal. Interdependence is the hallmark of teamwork. It means that team members must rely on others for information, expertise, resources and so on. Third, teams are bounded and remain relatively stable over time. McShone (1998) defined teams as a group of two or more people who interact and influence each other and mutually accountable for achieving common goals and associated with organizational objectives, and perceive themselves as a social entity within the organization.

Boundedness means the team has an identifiable membership; members as well as non-members. Most teams work together for a meaningful length of time, long enough to accomplish their goal. Fourth, team members have the authority to manage their own work and internal processes. Finally, teams operate in a larger social system context. Teams are not island unto themselves. They do their work in a larger organization, often alongside other teams.

Richard (1991) described team as a unit of two or more people who interact and coordinate their work to accomplish a specific objective. He also said that the definition has three components. First, two or more people are required. Teams can be quite large, running to as many as seventy five (75) people in a team with a regular interaction. People, who do not interact, such as when standing in line at a bank counter or riding in an elevator, do not comprise a team. Third, people in a team share a performance objective, whether it is to design a new type of hand held calculator or write a textbook. Students are often assigned to teams to do class work or assignments, in which case the purpose is to perform the assignment and receive an acceptable grade.

A team is similar to what is usually called group in organizations, but team has become the popular word in the business community. The team concept implies a greater sense of mission and contest although the words can be used interchangeably. People often refer their groups as teams; they are really not team, because there are several important distinctions between them as explained by Jerald et al (1997). First, in group, performance typically depends on the work of individual members, however team depend on both individual contributions and collective work products. The second difference has to do with where the accountability for the job lies. Typically, members of groups pool their resources to attain goals, although it is individual performance that is taken into consideration when it comes to issuing rewards, members of group usually do not take responsibility for any result other than their own. By contrast, team focus on both individual and mutual accountability. That is, they work together to produce an outcome.

Third, whereas group members may share a common interest goal, team members also share a common interest to purpose. Team members focusing jointly on such lofty purposes, in conjunction with specific performance goals, become heavily invested in its activities. Team however also has a broader purpose, which supplies a source of meaning and to the emotional energy to activities performed. Fourth, in organizations teams differ from groups with respect to the nature of their connections to management. Work groups are typically required to be responsive to demand regularly placed on them by management. By contrast, once management establishes the mission for team and sets the challenge for it to achieve, it typically gives the team enough flexibility to do its job without any further interference. In other word, teams are to varying degrees of self managing.

Team success or failure can be evaluated using some performance criteria factors. According to Hackman (1987) three key criteria are: productivity, satisfaction and individual well being. Organization gain was added by Leigh Thompson as suggested by Grueofield (1998).

Productivity is the most important measure of team success. Team productivity requires that the team have a clear goal and be able to adopt accordingly as new information arrives, goals change and organizational priorities shift. The productivity criterion asks whether the team's output meets the standards of those who have to use it, that is, the end users. It is not enough that the team is satisfied with the output or even that it meets some objective performance measure. If the teams output is unacceptable to those who to use it, the team is not effective. For these reasons, it is

important to identify the legitimate clients of the team. The various end users who depend upon the team's output may focus on different performance standards (e.g. quantity, quality, cutting cost, innovation and timeliness).

Satisfaction and well-being are based on learning something from working together and better able to work together in the future. Sometimes, team meets their goals, but relationships suffer and are not dealt with in a way that allows members to work productively together in the future. Hackman (1990) observed that mutual antagonism could become so high that members would choose to accept collective failure rather than to share knowledge and information with one another. In an effective functioning team the capability of members to work together on future projects is maintained and strengthened. Individual growth implies that teams should represent growth and development opportunities for the individual needs of the members. Human beings have a need for growth, development and fulfillment. Some teams operate in a way that block the development of individual members and satisfaction of personal needs. In short, member's needs should be more satisfied than frustrated by the team experience.

The fourth criterion of team performance is organizational gains. Does the organization benefit from the team? In many cases, the team becomes so self serving and egocentrically focused that it loses sight of the organization's larger goals. (This is most likely the case with teams that have greater autonomy).

3. Methodology

The study was carried out in Metro Mass Transit Limited, Ghana which was established in 2001 by the former President of Ghana, John Kuffour who directed the re-introduction of public mass transport in the metropolitan and municipal areas to ensure safe, affordable, efficient and reliable movement of Ghanians. Since then, the Government has been actively promoting public mass transportation. Indeed, the benefit accruing to the nation from the introduction of a public mass transport system is immense. The use of public mass transport systems will therefore make roads less congested, reduce air pollution, fuel consumption and ultimately, Ghanians will have a reliable and faster transport system (MMT, 2009).

The company was majorly chosen because presently the company is facing hyper competition from other similar transport companies due to the high demands for affordable, reliable and comfortable public transport, due to the increase in population of urban dwellers and affordability of its service. Metro Mass Transit Limited (MMT) Ghana was officially incorporated in 2003. The shareholders include State Insurance Company, National Investment Bank, Ghana Oil Company Limited, Agriculture Development Bank, Prudential Bank and SSNIT. These together have 55% shareholding. The Government of Ghana holds the remaining 45% shares. Metro Mass Transit as at 2008 has fleet of buses of 1,063 made up of Yaxing, DAF, Neoplan, VDL, VDL Jonckhere, VDL Dutch, Iveco and Tata buses. MMT has grown to be one of the major employers in Ghana. MMT's current staff strength of around 2635 and is expected to exceed 3000 by the end of 2008 with the arrival of 212 buses by the end of 2008. Janitorial services, security, bus washing and cleaning are outsourced to third parties providing employment for additional 500 persons (MMT, 2009).

For the purpose of this study the entire workforce of Metro Mass Transit Limited which stands at 2635 as at 2008 constituted the population of the study. From this population a sample size of 1500 was selected using simple random sampling technique. This random sampling technique gives equal chance to every member of staff without any form of preference. Copies of questionnaire were administered to the 1500 respondents in order to collect relevant data whereas 1320 were found analyzable. Secondary data were collected from published journals, textbooks, internet and magazines. The collected data were analyzed using descriptive techniques whereby frequency distribution, percentages and table presentations were adopted.

4. Results and Discussions

4.1 Personal characteristics of Respondents

The personal characteristics of the respondents for this study included attributes such as sex, age, educational qualifications, and years of experience in the company. These were considered necessary for analysis as institutional studies have proved the impact of such traits on the effectiveness of workers (Anderson, 1976; Gibbons, 1997; World, 2001)

Data in table 1 shows that 90% of the respondents were males and the remaining 10% were females. The population distribution favored male because the company deals with buses and articulated vehicles which need much strength and physical ability. The females in the company were employed in ticketing section. Ages of respondents ranges between 21 and 50 years, with the majority of them (85%) in the active age range of between 21 to 40years. With respect to their educational qualifications, 35% of the respondents had HND/Bsc certificate, 40% were OND /NCE holder, while the remaining 25% had professional qualifications.

Furthermore, from the responses to their years of experience, it was deduced (table1) that 47% had 6 to 10years experience 38% had 1 to 5 years experience and the remaining 15% had above 10 years experience.

4.2 Effectiveness of Metro Mass Transit in team management

One of the strategies observed as positively contributing to enhancing business performance is the effectiveness of the organization concerned on team management. Table 2 indicates the opinion of the respondents when asked about the effectiveness of Metro Mass Transit in team management. 85% strongly and ordinarily agreed that Metro Mass transit is effective in team management, 7% disagreed while the remaining 8% undecided. This implies that Metro Mass transit is effective in team management, bearing in mind that these views were expressed by those with direct knowledge of the situation in the company.

4.3 Business performance and team management

Respondents were asked to state their opinions about the relationship between business performance and team management. Table 3 indicates that 50% of the respondents strongly agreed that team management is crucial to business performance. 41%, 2%, and 7% agreed, disagreed and undecided respectively. The implication of this is that, team management if well built and managed, it would result to high productivity and increased business performance. This is due to the fact that effective team management and development are essentials for business productivity and performance.

4.4 Individualism and organization productivity and performance

Result from table 4 revealed that 92% of the respondents strongly or ordinarily agreed as against 8% who disagree or undecided on the question. This means that majority of the respondents aligned with the fact that individualism is a great hindrance to organization productivity and performance. This corroborates Robert (2008) findings that team work is a good goal but poor teamwork can be disastrous when everyone goes his/her own way and self preservation becomes the major motive, the team eventually disintegrates.

4.5 Team management and customers' satisfaction

Good team management helps organizations to devise various means of improving the workers performance and enhance business productivity, good quality and quick response to customers demand and customers satisfaction. On this basis, the researcher asked about the efficacy of team management in satisfying customers and meeting their demand. The result shows that almost all the respondents (95%) agreed to the fact that team management is one of the potent tools when it comes to meeting customers demand and satisfaction. 1% and 4% disagreed and undecided respectively.

4.6 Team management as an essential strategy needed to aid business performance

Respondents were asked about their views on the essentiality of team management strategy in aiding business performance. 96% of the respondents believed that team management is an essential strategy to aid business performance, while the remaining 4% disagreed or undecided. This is in line with the findings of the study carried out by Brown et al (1996) which concluded that effective team management makes workers to be more flexible to relate to other workers, supervisors and managers throughout the organization, to operate sophisticated technology and to be more adaptable to expertise for technological advances so as to bring about quality products, achievement and meeting quotas.

4.7 Team management and changes in the global business environment

One of the strategies adopted in global business environment is team management. On this basis, respondents were asked whether team management can make organization respond to rapid change in the global business environment. 99% of the respondents strongly and ordinarily agreed to the fact that if properly established, team management will help organization to respond rapidly to any changes in global business environment. This is due to the fact that demand of today's global economy has made team management a prominent strategy in moving organization forward. Rapid change in the technical, legal and regulatory environments and rapidly changing customers' demands require organization response. Because effective coordination and cooperation determine in part the organizations ability to respond to these changes (Thompson, 2000).

5. Obstacles to the Effective Team Management

Despite the numerous models for effective team management, there are some obstacles hindering the smooth operation of effective team management as identified by scholars and business leaders around the world. The first problem according to Thompson (2000) is that team requires the right environment to flourish. Many companies forget this point by putting people in teams without changing anything else. As earlier noted, teams require appropriate rewards, communication system, team leadership and other conditions. Without these, team management could be a waste of time. Also changing environmental conditions to improve teamwork management could result in higher cost than benefits for the overall organization.

He further stated that team work management requires alteration of organization structure, workers roles and skills. Therefore the greatest obstacle is the resistance to change, which will occur in managing the team. Team management process requires improved technology, functional social infrastructure, organization resources, training techniques and

other tools for effective team management. These may be lacking in organization especially organizations in less developed countries.

Zand (1972) also identified lack of top managerial commitment, inefficient and ineffective communication, inadequate feedback mechanism and lack of effective leadership in organization as other obstacles militating against effective team management.

6. Conclusion and Recommendation

This study was conducted on the premise that due to changes in global business environment, organizations which have re-organized their workforce into effective, managed and properly designed teams claim substantial improvements in morale, job satisfaction productivity and quality. These claims have resulted in interest from other organizations keen to share in the possible benefits.

Effective team management has really enhanced the rapid response of organizations to the demands of today's economy and most of the organizations survive in the increase and rapid change in customers demand by being effective in management of all teams which thereby encourage and motivate workers to boost their productivity which aids and add quality to customers satisfaction leading to the business productivity (Adeleke, 2008).

The findings of the study showed that team management is an essential strategy needed to aid business performance; also it is an essential tool that can help in improving business performance and productivity. Furthermore, the study revealed that individualism is a major hindrance to organization productivity and performance. Lastly it was discovered from the study that team management is effective and efficient in response to changes in customers' demand and in satisfying their needs.

However, for survival, performance, and productivity of business organization, the following recommendations should be put into consideration;

- a. Organizations should depart from a culture that encouraged competing personalities, factionalism, and autocratic management to a culture that stresses teamwork, collective entrepreneurship through employee involvement and participative management.
- b. Organization shall be effective in team management for team not to be a disappointment but productivity enhancers for better organization performance.
- c. Organization should clearly understand why, how and when to use teams in organization and do not just throw people together and call them a team.
- d. Team members should be motivated to use their knowledge and skills to achieve share goals. They should be motivated through reward and compensation.
- e. Lastly, workers should be trained to increase their interpersonal skills, decision making and knowledge in the concept of teamwork.

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Table 1. Personal characteristics of the respondents in the study area

PERSONAL CHARACTERISTICS	PERCENTAGE (N=1320)
Sex distribution	
Male	90
Female	10
Age range (years)	
21- 35	45
36- 40	35
41 and above	20
Educational background	
OND/NCE	40
HND/Degree	35
Others	25
Years of experience	
1-5years	38
6-10years	47
11years above	15

Source: Field Survey, October 2008

Table 2. Distribution of respondents on effectiveness of Metro Mass transit in team management

Categories of response	Frequency N=1320	Relative Frequency (%)
Strongly agree	583	44
Agree	539	41
Disagree	88	7
Undecided	110	8
Total	1320	100

Source: Field survey, 2008

Table 3. Distribution of respondents on relationship between team management and improved business performance

Categories of response	Frequency N=1320	Relative Frequency (%)
Strongly agree	660	50
Agree	539	41
Disagree	33	2
Undecided	88	7
Total	1320	100

Source: Field survey, October 2008

Table 4. Distribution of respondent's opinion about individualism and team performance

Categories of response	Frequency N=1320	Relative Frequency (%)
Strongly agree	682	52
Agree	528	40
Disagree	22	2
Undecided	88	6
Total	1320	100

Source: Field survey, October 2008

Table 5. Distribution of respondents on relationship between team management and customers' satisfaction

Categories of response	Frequency N=1320	Relative Frequency (%)
Strongly agree	759	58
Agree	495	37
Disagree	11	1
Undecided	55	4
Total	1320	100

Source: Field survey, October 2008

Table 6. Distribution of respondents on team management as an essential strategy needed to aid business performance

Categories of response	Frequency N=1320	Relative Frequency (%)
Strongly agree	770	58
Agree	495	38
Disagree	11	1
Undecided	44	3
Total	1320	100

Source: Field survey, October 2008

Table 7. Distribution of respondents on relationship between team management and response to changes in global business environment

Categories of response	Frequency N=120	Relative Frequency (%)
Strongly agree	935	71
Agree	374	28
Disagree	0	0
Undecided	11	01
Total	1320	100

Source: Field survey, October 2008



Discussion for Applicability of the Fair Value Measurement in the Financial Crisis

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Abstract

In the context of the whole world financial crisis, the fair value measurement has been provoked furious condemnation. Some even require revert fair value measurement to historical cost valuation method. In this paper, the author analyze the relation between fair value and financial crisis, and on this basis, pointed out that the fair value measurement is only a catalyst rather than the root causes of the financial crisis. Fair value measurement still has applicability in the context of the financial crisis, and analyzed the reasons for the applicability of the fair value.

Keywords: Financial Crisis, Fair value, Applicability

1. Raise the Question

The U.S. financial crisis triggered by the sub-prime crisis has swept the globe, and evolved into a global financial crisis. At the present time, the financial crisis is engulfing Wall Street crazily, and also hitting violently the fair value measurement which representing the future direction. Although the fair value once bring happiness to the Wall Street bankers, but now they are talking about the mere mention of the fair value. They said that the fair value, particularly in the measurement of market-based approach, can not objectively reflect the value of the assets, and also in the financial crisis, made the company reports too "ugly", affected the company's performance and investors' confidence, played a fueling role. Worse still, some people believe that the international accounting standards' provisions for the fair value are one of the culprits that causing the financial crisis. The sound was immediately received by a number of financial industry and members of Congress. So they combined to pressure the government and require fair value measurement method will be changed back to historical cost method in order to stabilize the people's hearts.

2. Fair Value Measurements and Financial Crisis

The U.S. Financial Accounting Standards No. 157 guidelines require that there are three levels about fair value measurement. The first level is the financial products that have an active market transactions, the fair value of such products is determined by an active market price. The second level is the financial products that have not an active trading market circumstances, the fair value of these products refer to the similar products in an active market, or use the value models that can be supported by an objective reference value. The third level is the financial products that have not an active trading market, the fair value of these products require managements establish the valuation models which based on the subjective judgments and the market assumptions (Yang, 2008, p.147).

Before the outbreak of the financial crisis, financial instruments are pricing in accordance with the first level. But financial crisis has led the real market to a no longer active market. In a no longer active market, the financial institutions should valuation the fair value under the third level. However, because the guidelines are not entirely reasonable, so the financial instruments still valuation in accordance with the first-level. And enable the prices of the financial assets and derivative financial products departure from its intrinsic value badly. The assets that measured by fair value are undervalued. A large number of provision for impairment, result in huge losses of book value, thus affect the report performance. The investors analyze operation performance according to the published financial statements data and reinforce people's confidence crisis, but the actual loss should be much smaller than the book. Meanwhile, due to the sluggish market conditions, most of the normal production and business operations have been affected, reducing the scale of operation exist widely, and part of the transaction business are at the edge of bankruptcy, the value of assets or liabilities that held by enterprises departure from the true value.(E,2008, p.74-75) The fair value can not reflect the fair value of the assets, and deeply measure the extent of the financial crisis. So it become the object of criticism, and had been accused of financial crisis "worse" or even the "culprit" of financial crisis.

3. Fair Value Measurement is a Catalyst Rather than the Root Causes of the Financial Crisis

However, the fair value measurement is not the "culprit" of the financial crisis, it only played a catalytic role in the financial crisis. Fair value itself has no problem. The question is that the prerequisite of fair value measurement has changed. In the financial crisis, an active trading market does not exist. Therefore, the fair value of financial products is no longer determined by the market quotations. However, as the changed prerequisite, people still select the fair value. Therefore, fair value measurement methods deep the financial crisis, and led to people's criticism of fair value measurement.

The fair value measurement has the pro-cyclical feature, it can enhance the sense of happiness at bubble period, and escalate panic at the time of crisis (Fu, 2008, p.10-15). In accordance with the market valuation cases, when markets are weak, the financial asset prices fell, each participant in the market will report losses, although this is a nominally loss, but the rights and interests will be eroded. Since the second half of 2007, the U.S. sub-prime mortgage crisis unfold, along with the rising of mortgage default rates, financial products' prices continued to fall, resulting in a large number of financial institutions have to provision for impairment of its assets, resulted in a large number of investors selling the holding financial assets crazily, and a sharp decline in the value of financial assets, financial asset prices fall further, and hit the investor confidence, thus the investor continue to sell financial assets, resulting in a new round of falling of financial asset prices(Chen,2008,p.108-109). It is that the fair value' pro-cyclical feature exacerbate the financial crisis, and form a double vicious circle of the capital markets and commodity markets.

However, the application of fair value measurement is totally clear and definite response to investors' requests and requirements. Fair value provides more transparent information to investors. But the financial industry neglect the investors' information needs, only criticize fair value measurements, but can not raise a convincing alternative. Fair value is more transparent, timely and efficient in making information users understand the scale and impact of financial crisis than historical cost. Fair value measurement is not the root causes of the financial crisis, in fact, the financial sector created the real estate bubble, and through unregulated, non-transparent financial innovations such as asset securitization approach to enlarge the financial asset bubble, since the United States use historical cost principle long-term, these issue has not surfaced, the accounting with fair value measurement model, timely, transparently and openly disclosure the financial asset bubbles, make the shortcomings of the U.S. financial system public in the world, prompting the financial sector, investors and financial regulatory authorities to address and resolve financial asset bubbles. If there is no use of fair value measurement, investors may be concealed in the bubble that the financial sector created.

4. Fair Value Measurement Still has the Applicability in the Global Financial Crisis

4.1 Fair Value Measurement Make Accounting Earnings More Relevant

According to the traditional concept of accounting earnings, accounting earnings is the differences between the realized income and the corresponding costs. The fair value measurement is to take measure of the fair value of the capital and liabilities at the balance sheet date, but also measured the profits and losses that caused by the change of fair value. This can compensate for the lacking of accounting earnings, and more reasonably reflect the financial position, operating results, cash flow and real earnings of the enterprise (Zhu,2008,p.4-5). The accounting information that measured at fair value provides more highly relevant information compared to historical cost.

4.2 Fair Value Measurement's Basis for Decision-usefulness View Still Exists

The basic goal of modern accounting is to be useful for a decision-making, takes into account to reflect the fiduciary duty. In the concept of fiduciary responsibility, the accounting information mainly report the responsibility of management that fulfill the economic situation. Assets measurement is mainly to protect the assets safety and integrity, and more emphasis on the reliability of accounting information, and select historical cost as a measurement model. In the decision-usefulness view, the relevance associated with the concept of decision-useful features. People increase relevance in order to enhance the usefulness of the decision-making. Accounting goal require not only the information in the past, but also the information on the performance of present and future. People advocate using a market-pricing to determine the fair value of financial assets. Fair value measurement is not only able to meet the needs of short-term speculative, but also able to meet the needs of investors in the long-term decision-making, which is widely used (Peng,2008, p.4-8). Currently, fair value measurement's basis for decision-usefulness view still exists. It is difficult to weaken the fair value measurement.

4.3 The Basic Reason of Fair Value Measurement is Operation Rather than the Basic Usage

Determining fair value by an active market quotation can reflect the real value of financial assets, in accordance with the economic substance of the fair value, and also operational. However, when a mutation in the market, especially the U.S. financial crisis has led to loss of market confidence, the market quotation is not the optimal choice to determine the fair value. In the financial crisis, the troubled sellers of assets are in the "Bargain" situation and irrational state, market price is also similar to the clearing price of rapid realization assets, does not meet the accounting assumptions of

"sustainable management". Moreover, in this financial crisis, there appeared the phenomenon of market liquidity suddenly disappeared, and the trading volume of many varieties of stock shrank greatly, indeed, without a buyer, in this case the market is or not an active market is worth exploring. The causes of the financial crisis are the excessive debt of consumers and over-leveraged of financial institutions, excessive securitization of capital markets and excessive liberalization of financial supervision. The accounting standards are not the culprit, fair value measurement's application basis and the economic meaning have no problems, but the method of operation based on the non-fair market price to determine the fair value in practice, fueled some effect to the financial crisis. We should not deny fair value's scientific content, but should establish an effective mechanism to adjust the mode to determine fair value under non-normal, non-efficient market condition.

4.4 SEC Relax the Fair Value Measurement Standard Rather than Stopping

September 30, 2008, the United States Securities and Exchange Commission released a guidance of Financial Accounting Standards No. 157 "Fair Value Accounting", requiring companies can not simply rely on the non-active trading price under the financial crisis conditions, but should determine the fair value of financial assets through the length of time of price declines, or as well as the judge of the market liquidity, or with the help of internal valuation models and assumptions. The second rescue package that U.S. House of Representatives through on October 3, specifically granted the United States Securities and Exchange Commission the re-classification rights for the financial assets. And asked the U.S. Securities and Exchange Commission refer the investigation report about the market measurement to congress within 90 days, and decide whether to terminate the accounting standards, but still insist on using fair value measurement before the outcome of the investigation. This shows that the provisions of No. 157 guidelines have been relaxed to some extent, and also reflects that the SEC and the FASB has not completely succumbed to the pressure of the financial sector, resist the pressure of stopping fair value accounting standards completely.

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A Study on Cross-Cultural Adjustment of Japanese and American Expatriates in China

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Abstract

A survey has been made on Japanese and American business expatriates who are currently working in China in order to explore the relationship between cultural distance and expatriate adjustment. Based on the reviewed literature and the theory, the authors put forward two hypotheses which are tested by a specially designed 34-item questionnaire distributed to 41 Japanese subjects and 53 American subjects. The results partly prove the expectation that cultural distance is negatively correlated with adjustment of business expatriates. The Japanese business expatriates working in China demonstrate higher degree of adaptability than the American business expatriates in general adjustment and interaction adjustment, but not in work or psychological adjustment.

Keywords: Expatriate adjustment, Cultural distance, General adjustment, Interaction adjustment, Work adjustment, Psychological adjustment

1. Introduction

Along with the integration of the world markets and the phenomenal growth of multinational business, multinational corporations have become a major form of foreign investment. For instance, fast food giants Burger King, Wendys' and McDonalds conduct respectively 30%, 20% and 50% of their business outside the U. S. (Rooney, 2007). Companies investing abroad need to manage, control, coordinate and integrate the operations of their foreign subsidiaries with those of the parent company. In order to achieve the goals, parent companies often send expatriate employees to host countries as corporate representatives and ambassadors.

According to Longman Dictionary of Contemporary English (1998), an expatriate refers to "a person who is living or working in a foreign country". These expatriates on assignment to foreign countries meet new cultural environments that they must try to make sense of in order to function properly. In many cases, expatriates are confronted with both job-related and personal adjustment problems. If ignored, these adjustment problems may result in stress both inside and outside an expatriate's professional life and lead to intentions to leave prematurely or even actual turnover. Black and Stephens define expatriate failure as "the premature return of an expatriate employee" (Black & Stephens, 1989, pp.529-544). According to the statistical data of the U. S. and the western countries, the failure rate of expatriates on assignment abroad was as high as 25% to 40% (Lü & Gao, 2004, pp.44-48). Expatriates may take a prolonged period of time to adjust, exhibit poor performance, be withdrawn or return home early, completing their assignment in a low state of effectiveness.

Over the past few decades, the Chinese economy has been expanding rapidly and a great number of multinational corporations have sought to integrate China into their global strategy. An expanding number of foreign businesses are pouring in, accompanied by an extended amount of expatriates. However, the success rate of expatriates posted to China is rather low. ASIMCO, one of the multinational companies surveyed by Stuttard, estimated that only around 20% of the

expatriates they sent to China were successful (Erbacher et al., 2006, pp.183-188). That is probably because what expatriates are confronted with in China is a new cultural environment which is quite distinct from their own. Therefore, how they are to deal with extra demands required of them in terms of the local culture, language barriers, and training local staff creates a serious problem for expatriates themselves as well as those multinational corporations they are in employment of. Furthermore, this issue has also attracted the attention of researchers at home and abroad (Selmer, 2007; Erbacher et al., 2006).

Among the numerous multinational corporations in China, those from U. S. and Japan, the two leading developed countries in the world, account for the largest percentage. Another factor considered in deciding which countries to do research on is the cultural factor. The Japanese culture is somewhat similar to the Chinese culture since both countries are in Asia and have long been shaped by the traditional Confucianism. On the contrary, the American culture is apparently different from that of China, the former characterized by individual achievement, competitiveness, self-reliance, materialism and the latter being more inclined to collectivism, harmony, stability and hierarchy. Therefore, it would be quite interesting and pragmatic to compare the Japanese and American cultures and the adjustment of expatriates from the two countries.

2. Literature Review

A number of researches have been done studying the relationship between cultural distance and expatriate adjustment. There are some scholars arguing that assigning expatriates to a similar culture can be as much, if not more, of a trying experience as sending them to a very different culture. Those scholars have found that cultural distance bears no relationship or even positive relationship with expatriate adjustment.

In a recent paper by Jan Selmer, he got a counter-intuitive result that although there is a significant between-group difference in cultural distance, that the American expatriates perceive Canada as more culturally similar to America than Germany, no significant inter-group differences are detected for general adjustment, interaction adjustment, work adjustment and psychological adjustment (Selmer, 2007, pp.185-201). One reason might be that American expatriates assigned to Canada with a similar culture do not detect any cultural differences because those differences are not expected. Hence, ensuing problems which are more probably attributed to other circumstances instead of cultural distance might result in increasing frustration as the feeling of unexpected maladjustment grew.

Reporting a study of 36 UK-based companies, Forster found out that respondents from similar cultures such as the U. S. are as likely to report adjustment problems as expatriates assigned from more dissimilar cultures, such as China (Forster, 1997, pp.414-433). He concluded that the degree of cultural "strangeness" does not seem to have any correlation with the outcome of the international assignment. Similarly, as Peterson et al. stated, the Japanese multinational corporations reported that their expatriates appear to adjust "about the same" in different countries, regardless of their degree of cultural similarity to Japan (Peterson et al., 1996, pp.215-230). Such results occur for various causes, and the main reason is attributed to unprepared expectance prior to assignment. Other reasons also include factors such as organizational cultural novelty and personal adaptability.

Despite the above findings, more of the researches on expatriate adjustment lead to the conclusion that cultures more different or distant from the expatriate's culture of origin present bigger challenges and result in greater adjustment difficulties (Ward & Kennedy, 1992, pp.175-194).

Torbiörn found that U. S. expatriates tend to experience greater cultural barriers in India, Pakistan, Southeast Asia, the Middle-East, North Africa, East Africa and Liberia in the areas of job satisfaction, stress and anxiety, and quality of life standards such as housing, food, and health care (Torbiörn, 1982). Similarly, Tung reported that U. S. expatriates express higher levels of dissatisfaction with their expatriation experiences in Africa, the Middle East and Southeast Asia than in other world regions since the culture in those areas are most dissimilar (Tung, 1982, pp.57-71).

Black and Stephens correlated a measure of cultural distance with expatriate adjustment using self-report from 220 business expatriates, whose results showed negative correlations (Black & Stephens, 1989, pp.529-544). Later, Black, Mendenhall and Oddou put forth a model of the dimensions and determinants of adjustment to international assignments (Black et al., 1991, pp.291-317). According to the model, it is proposed that cultural novelty will be negatively associated with degree of international adjustment, especially with that of interaction and general adjustment.

Based on that, Gregersen and Stroh conducted a research to assess the processes of Black et al.'s model theoretically and empirically (Gregersen & Stroh, 1997, pp.635-654). Anticipatory and in-country variables related to work, interaction, and general repatriation adjustment has been examined with a focus on Finnish expatriates and spouses. It is revealed that culture cultural novelty correlate significantly with repatriates' adjustment to interacting with home country nationals, and for Finnish repatriates' spouses, culture novelty correlate significantly with adjustment to interacting with home country nationals and spouses' general adjustment.

Subsequently, Shaffer and associates' survey has also comprehensively tested Black, Mendenhall and Oddou's model (Shaffer et al., 1999, pp.557-581). Completed by 452 expatriates from large multinational firms in 29 different countries

who were assigned to 45 host countries, support and confirmation for Black et al.'s model is found. It is concluded that cultural distance hinders general adjustment. One limitation of the study lies in the classifications of similar or dissimilar cultures relative to the United States as the parent country. Since the expatriates are working in large multinational corporations, difference in the national culture may be obscured by the corporate culture to some extent.

3. Theoretical Framework

3.1 Dimensions of Adjustment

Some scholars proposed the two dimensions of adjustment, namely general adjustment and work adjustment. Others added a third dimension, adjustment to interactions with host nationals which separated interactions with host nationals from other aspects of the general environment such as transportation and climate. Black and his colleagues proposed three related but separate dimensions of expatriate adjustment (Black, et al., 1991, pp.291-317):

- (1) adjustment to the job (work adjustment)
- (2) adjustment to interacting with host-country nationals (interaction adjustment)
- (3) adjustment to the general non-work environment (general adjustment)

3.2 Determinants of adjustment

As early as 1991, Black, Mendenhall and Oddou proposed a comprehensive model of determinants of adjustment to international assignments (Black et al., 1991, pp.291-317). This model was subsequently expanded and tested by Shaffer, Harrison and Gilley who additionally examined two individual factors and three positional factors as moderators of adjustment determinants (Shaffer et al., 1999, pp.291-317).

The model of determinants of expatriate adjustment proposed by Mendenhall and Oddou (1991) and expanded by Shaffer, Harrison and Gilley (1999) can be summarized as follows:

(1) Individual Factors

Certain traits and characteristics of individuals have been proposed as predictors of expatriate success. Those factors include achievement and social self-efficacy, relational and perceptual skills, previous assignments and language fluency.

(2) Job Factors

Job factors refer to a specific set of tasks and duties performed by a given individual, such as role clarity, role discretion, role conflict and role novelty.

(3) Organizational Factors

There are three perspectives of organizational factors, organizational cultural novelty, social support and logistical support.

(4) Positional Factors

Positional factors have something to do with the nature of the work and stress at varying hierarchical levels and functional positions. There are three sub-factors to this category, hierarchical level, functional area and assignment vector.

(5) Non-work Factors

There are mainly two kinds of non-work factors according to Black, culture novelty and spouse/ family adjustment. Culture novelty refers to the perceived distance between host and parent country cultures, and has been found to hinder non-work adjustment (Shaffer et al., 1999, p.560).

The three-dimensional view of expatriate adjustment and the model of determinants of adjustment to international assignments provide a comprehensive theoretical framework for the present paper. Among the various factors that may have influence on expatriate adjustment, the non-work factor of cultural distance is paid special attention to in the present paper.

4. Research Design

According to the literature review, a large number of studies come to the conclusion that cultures more different or distinct from the expatriate's culture of origin present bigger challenges and result in greater adjustment difficulties (Ward & Kennedy, 1992, pp.175-194). Therefore, the authors make an assumption that larger cultural distance is associated with more difficult adjustment for expatriates. This is made based on both intuitive induction and empirical researches. Firstly, there are a number of previously conducted studies supporting this point of view. Furthermore, most of these studies are well grounded on a systematic theoretical framework and most researches have examined the social context in which expatriates live and work.

H1: *The cultural distance between the U. S. and China is larger than that between Japan and China.*

H2: *The Japanese business expatriates working in China demonstrate higher degree of adaptability than the American business expatriates in work adjustment, interaction adjustment, general adjustment and psychological adjustment.*

4.1 Subjects

A quantitative methodology is employed in this study. Subjects are American and Japanese business expatriates who are currently working in major cities of China, such as Beijing, Shanghai, Guangzhou, Shenzhen and Chengdu. The subjects are selected following the three criteria:

- (1) They have to be American or Japanese citizens and those American born Chinese or Japanese born Chinese are excluded.
- (2) They have been working in China continuously for at least three months.
- (3) Their working industries are business relevant and those teachers, scholars, exchange students, diplomatic officials are not included as subjects.

In order to get an adequate number of qualified subjects, the authors collect data for this study in various ways. One way is to send e-mails to the human resource department of companies listed in the website of American Chambers of Commerce (AmCham) and Japanese Chambers of Commerce in China respectively and ask them to distribute the e-mail to accordant subjects. At the same time, the authors call and e-mail their friends and acquaintances asking for their favor to help find suitable subjects. Although most responses are received via mail surveys, personal contacts and surveys are also made by the authors at various places, such as schools, agencies and on the streets.

4.2 Instruments

Questionnaire is the major instrument used in this study. It is divided into four sections, demographic information, sociocultural adjustment, psychological adjustment and cultural distance.

Demographic information includes nationality, gender, age, education and years in China. Such items are put in the instruments so that these demographic factors can be considered.

Sociocultural adjustment is measured by adopting Black and Stephens' (1989) 14-item scale with slight modification. As the most often tested and utilized measurement to assess expatriate's sociocultural adjustment, it is designed to measure three dimensions: general adjustment (sample item: "living conditions in general"), interaction adjustment (sample item: "interacting with host nationals on a day-to-day basis"), and work adjustment (sample item: "specific job responsibilities"). The respondents indicate how well adjusted they are to their respective host location on a scale ranging from 1 ("very unadjusted") to 5 ("completely adjusted"). The resulting reliability scores of the three variables are acceptable: seven items on general adjustment ($\alpha = .76$), four items on general adjustment ($\alpha = .84$), and three items on work adjustment ($\alpha = .88$).

Psychological adjustment is measured using the General Health Questionnaire (GHQ-12) developed by Goldberg (1972) with some modifications. Containing a number of questions concerning how people have been feeling recently, it includes sleeping difficulties, feelings of unhappiness, and the respondents' ability to enjoy everyday experiences. Respondents are asked to think about how they have been feeling over the past few weeks (sample item: "Have you recently been able to concentrate on what you're doing?"). Responses range from 1 ("more than usual") to 5 ("less than usual"). Reliability coefficients range from .78 to .95 in various studies.

Cultural distance is measured by the 8-item scale used by Black and Stephens (1989) adopted from Torbiörn (1982). On a 5-point Likert scale, the expatriates are asked to indicate how similar or different a number of conditions are at the host country compared with their home country (sample item: "transportations systems used in the country"). The response categories vary from 1 ("extremely different") to 5 ("extremely similar"). For easier interpretation of the results, this scale is reversed to make a higher score represent a larger cultural distance. There is an acceptable reliability score for this scale ($\alpha = .80$).

5. Data Analysis

Altogether there are 94 subjects in the present research, with 41 Japanese business expatriates and 53 American business expatriates. All the raw data collected from the questionnaires are loaded into SPSS and sorted into different variables.

As can be seen from Table 1, the average age of the respondents is 41.36 (SD = 12.668), with 37.59 (SD = 11.555) for the Japanese expatriates and 43.98 (SD = 12.850) for the American expatriates. Male respondents account for more than 60% of the expatriates from both countries. As for educational background, 33.3% of the respondents have a bachelor's degree and 32.2% have a master's degree; the lowest ratio comes to high school. However, some differences could be observed comparing the respondents from the two countries: for the Japanese expatriates, 46.3% have a bachelor's degree while 26.8% have a master's degree, and there are few expatriates with a MBA degree (7.3%). People with a

master's degree accounts for the most for the American expatriates (35.8%) and the percentage of people with a bachelor's degree lists the second (24.5%). 17% of the American expatriates have a MBA degree. Respondents have spent an average of 5.792 years (SD = 6.217) in China.

The authors perform ANOVAs on each demographic variable with nationality as the independent variable. As a result, there is no significant difference for gender ($p = .806$), age ($p = .077$), educational background ($p = .120$) or years in China ($p = .522$).

After a brief summary of the demographic information, the two research hypotheses are to be tested through two steps.

Step 1: To test Hypothesis One: The cultural distance between the U.S. and China is larger than that between Japan and China.

The last part of the present questionnaire adopted from Black and Stephens' (1989) 8-item scale is to be analyzed in order to test hypothesis one. The eight items cover all facets of living in a new environment from health care facilities to food, climate and housing. Respondents are asked to mark from 1 to 5 according to the degree of dissimilarity they perceive in the host country compared with their home country.

It can be obviously drawn from Table 2 that the American expatriates in China perceive larger cultural distance than the Japanese expatriates and this difference is statistically significant ($p = .001$). Perception of respondents from the two countries differ most greatly in climate and general housing condition, and then food and living conditions. They consider health care facilities in China differ most from those in their home countries, and everyday customs and living conditions come next. General housing conditions and transportation systems in China are considered the least different from those in their home countries.

Therefore, based on the results from the analysis of cultural distance for the respondents from Japan and America, it is tested that hypothesis one is true.

Step 2: To test Hypothesis Two: The Japanese business expatriates working in China demonstrate higher degree of adaptability than the American business expatriates in work adjustment, interaction adjustment, general adjustment and psychological adjustment.

Five variables are processed in SPSS correlation analysis program in order to test whether there is any statistically significant relationship between cultural distance and the four facets of adjustment. The Pearson correlation coefficient is calculated by SPSS correlation analysis program. The coefficient, ranging from -1 to +1, indicates the degree to which the two variables are related.

Table 3 displays the means, standard deviations and correlations among the variables. The five variables are derived from the average score of the accordant items in the questionnaire. As a result, the mean scores for four facets of adjustment are rather high, which indicates that both the American and Japanese expatriates in general have adjusted well to their foreign environment, especially to work environment. What's more, it can be well observed that all sociocultural and psychological adjustment variables are significantly correlated. There is a significant negative association between general adjustment and cultural distance ($p = .003$), and between interaction adjustment and cultural distance ($p = .002$), suggesting that the smaller they consider the cultural distance between China and their home countries, the more adjusted expatriates are to the general living conditions and the more adjusted they are to interacting with host nations. However, there is no significant correlation between work adjustment and cultural distance, or between psychological adjustment and cultural distance.

Linear regression analysis is also employed in the study in order to further investigate the relationship between variables. It is a statistical tool which seeks to ascertain the causal effect of one variable upon another, for instance, the effect of cultural distance upon general adjustment. The five variables are also derived from the average score of the accordant items in the questionnaire.

Table 4 displays the results of linear regression analysis which tests the direct effects of cultural distance on both sociocultural adjustment and psychological adjustment. Four separate linear regression analysis are conducted in which four facets of adjustment are the dependent variables and cultural distance and nationality are entered as the independent variables. As illustrated in the table, regression coefficients are significant for general adjustment and interaction adjustment, suggesting that cultural distance has statistically significant effects on general and interaction adjustment, but no significant effects on work adjustment or psychological adjustment are perceived. Such results are consistent with the findings of the above Pearson correlation analysis with the variables.

In brief, the correlation analysis and linear regression analysis work out the correlation between cultural distance and the four facets of adjustment. It is concluded that cultural distance has negative effect on general adjustment and interaction adjustment, but no effect on work adjustment and psychological adjustment. Such a result supports Hypothesis Two only partly.

6. Findings and Discussion

Based on the detailed results of this study, the major findings can be summarized in the following:

- (1) The American business expatriates in China perceive larger cultural distance between China and their home country than the Japanese business expatriates, especially in terms of climate and general housing conditions.
- (2) The Japanese business expatriates working in China demonstrate higher degree of adaptability than the American business expatriates in general adjustment and interaction adjustment, but not in work or psychological adjustment. That is to say, cultural distance is negatively correlated with expatriates' general and interaction adjustment, but bears no relationship with work or psychological adjustment.

6.1 Discussion of Hypothesis One

The results of this study indicate that the American business expatriates perceive larger cultural distance between China and their home country than the Japanese business expatriates, which has testified hypothesis one. Such a result can be justified from geographical, historical and cultural perspectives. In the first place, both Japan and China are located in the eastern part of the Pacific while the U. S. lies far away on the other side of the ocean. Spatial distance has prevented the communication and intercourse between China and the U. S. to a large extent, especially when transportation was not that well-developed. On the contrary, the geographical advantage of Japan and China has enhanced and prospered the contact between the two countries.

What's more, China and Japan have had close cultural communication and commercial exchange ever since the ancient times. As early as 57 BC, it was noted in the Chinese historic textbook of Later Han that the emperor of the *Han Dynasty* gave a golden seal to *Wa* (Japan). The influence of the Chinese culture reached its peak during the *Sui Dynasty* and *Tang Dynasty* when Japan sent many students of imperial embassies to China and brought back from China important elements including Chinese customs and culture, bureaucracy, architecture and city planning. Conversely, most of the economic exchange and cultural communication between China and the U. S. began only after the opening of China in the 1980s.

In addition, China and Japan share common grounds in culture in that both of the two countries have been profoundly shaped by Confucianism whose impact on the society lasts up to now. Under the influence of Confucius and Confucianism, the two countries are both collectivistic and emphasize much on the social group such as the family or the clan. However, the Chinese and American cultures are quite mysterious and distinct for each other, each representing a typical cultural pattern on the two sides of the Pacific.

Hypothesis two is only partly tested. It is found out that cultural distance is negatively correlated with expatriates' general and interaction adjustment, but bears no relationship with either work or psychological adjustment. Such a result is consistent with the previous studies in the relationship between cultural distance and sociocultural and psychological adjustment (Black & Stephens, 1989; Gregersen & Stroh, 1997).

6.2 Discussion of the Negative Relationship between Cultural Distance and General and Interaction Adjustment in Hypothesis Two

The results of this study indicate that the Japanese business expatriates working in China demonstrate higher degree of adaptability than the American business expatriates in general adjustment and interaction adjustment. Items of general adjustment cover a wide range of living facets from housing and transportation to shopping, which are quite similar with items of cultural distance. Therefore, it is not difficult to explain the negative correlation between general adjustment and cultural distance since for those specific items such as shopping, if expatriates find them more different from what things are like in their own culture, they will probably end up with more adjustment difficulties.

As for interaction adjustment, such a result is consistent with some of the previous researches in that they all lead to the conclusion that cultural distance is negatively correlated with interaction adjustment (Black & Stephens, 1989; Gregersen & Stroh, 1997). This can also be explained using uncertainty reduction theory, a specialized theory on personal interaction and relationship especially among strangers. According to the theory, cultural distance influences uncertainty and anxiety reduction since larger cultural distance is likely to induce and increase the unpleasant emotions of business expatriates on assignment to a foreign country in both initial interactions and more developed relationships, and thus makes adjustment more difficult. People from two more distant cultures are likely to find everyday interaction and communication more difficult, mostly due to differences in language, tradition and customs. On the contrary, those people from similar cultures may find the custom and everyday living quite familiar, and thus reduces the anxiety and uncertainty of the attendant which makes cross-cultural adjustment easier.

6.3 Discussion of the Zero Relationship between Cultural Distance and Work Adjustment in Hypothesis Two

The results also find out that cultural distance bears no correlation with work adjustment, which means the respondents from both Japan and the U. S. perceive no obvious difference in their adjustment relating to job and supervisory responsibilities, and performance standards and expectations. First of all, the respondents are at an average age of 41

years old and have stayed in China for about 5.5 years. Most of the respondents in the present study are at the managerial level with average working experiences of 20 years or so. Those expatriates have been highly professional at job responsibilities and performance standards due to the rich working experiences.

Furthermore, although the living customs and traditions may vary from one place to another, the working principles are almost the same throughout the world, especially in the recent years when the most advanced and effective management is shared worldwide. As a matter of fact, the Americans have developed a series of the most advanced management which have been profoundly imitated and adopted by both the Japanese and Chinese corporations. For instance, such working concepts as result-orientation and people-centered are believed by most of the corporations no matter where they are located. Therefore, business expatriates on assignment to a foreign country may find that the job responsibilities and performance expectations required of them remain almost the same as things are like those in their home country.

6.4 Discussion of the Zero Relationship between Cultural Distance and Psychological Adjustment in Hypothesis Two

Psychological adjustment is also tested to be unrelated to cultural distance. The results show that American respondents get a higher mean score than Japanese respondents in psychological adjustment. Although psychological adjustment is rather obscure and difficult to measure, such a result is understandable considering the cultural characteristics of the two nations. The United States is well known as the “melting pot” with a ready ease of accepting other cultures and absorbing the fine qualities of other cultures. American people are world famous for being adventurous and open-minded, in favor of exploring new things like traveling to and living in a foreign country. They are always encouraged to take adventure even as a little child, which constitutes the explorative characteristics of the whole nation. Furthermore, the American people get a low uncertainty avoidance index in Hofstede’s (2001) five cultural dimensions, indicating their high tolerance for uncertainty and ambiguity. All these have made it easier for the American people to adjust psychologically to the new environment.

Meanwhile, as for the Japanese respondents, although the Japanese people can easily accept the most advanced technique and management from other regions, it is not that easy for them to take in other cultures and lose their own identity. It has also been investigated that the suicide rate of the Japanese teenagers lists one of the top in the world, which reflects the psychological problems in the nation, especially in cities where living pressure is highly oppressive. The Japanese people live in a small island isolated from other continents, which leads to their features of being reserved and traditional. What’s more, compared with the Americans, the Japanese score high in uncertainty avoidance index in Hofstede’s (2001) five cultural dimensions, which means they would usually feel uncomfortable in unknown and different situations. As a result, such characteristics of the Japanese people have negative influence on their psychological adjustment in a new environment. Therefore, the comparison of qualities of the Japanese and American people leads to the conclusion that the American business expatriates adjust better to the Chinese cultural environment psychologically than the Japanese expatriates.

7. Conclusions

This research is a tentative one which applies the theory of Black, Mendenhall and Oddou’s three dimensions of adjustment and Shaffer, Harrison and Gilley’s determinants of adjustment to study Japanese and American expatriates in China. A contrastive study between the two groups of respondents has been made in order to find out how cultural distance is related to adjustment. In summary, the results have confirmed the research hypotheses to a certain extent.

The study yet has some potential shortcomings. In the first place, the subject size in this survey is limited, though the number is to be statistically significant. What’s more, a possible weakness of the study is the methodology utilized herein and it would be better if other methods such as interview and observation are also employed during the research. Last but not least, the factor of cultural distance is mainly focused and its effect on expatriate adjustment is examined in this paper. However, more predictors should be included for consideration for further research on related areas.

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Table 1. Demographic information of the samples (N=94)

Demographic Variables	Japanese in China (n=41)			Americans in China (n=53)		
	Frequency	Percent	Mean	Frequency	Percent	Mean
Gender:						
Male	26	63.4		34	64.2	
Female	15	36.6		19	35.8	
Age:			37.59			43.98
Education:						
High school	4	9.8		3	5.6	
B. A.	19	46.3		13	24.5	
MBA	3	7.3		9	17	
M. A.	11	26.8		19	35.8	
PHD	4	9.8		9	17	
Years in China:			6.009			5.104

Table 2. Means, standard deviations and significance for cultural distance

	item	Japanese (n = 41)		Americans (n = 53)		Total (N = 94)		
		mean	SD	mean	SD	mean	SD	Sig.
CD1	everyday customs	3.41	.725	3.53	.932	3.48	.851	.503
CD2	living conditions	3.19	.908	3.60	.840	3.43	.887	.028
CD3	health care	3.62	.758	4.02	.971	3.86	.906	.040
CD4	transportation	3.05	1.129	3.38	1.164	3.24	1.154	.193
CD5	living costs	3.14	1.110	3.53	.973	3.37	1.043	.079
CD6	food	3.05	.911	3.60	1.149	3.38	1.087	.017
CD7	climate	2.81	.943	3.58	1.117	3.27	1.049	.001
CD8	housing	2.57	1.004	3.43	1.138	3.08	1.183	.000
	Cultural Distance	3.12	.504	3.59	.722	3.40	.654	.001

Table 3. Means, standard deviations and correlations among the variables

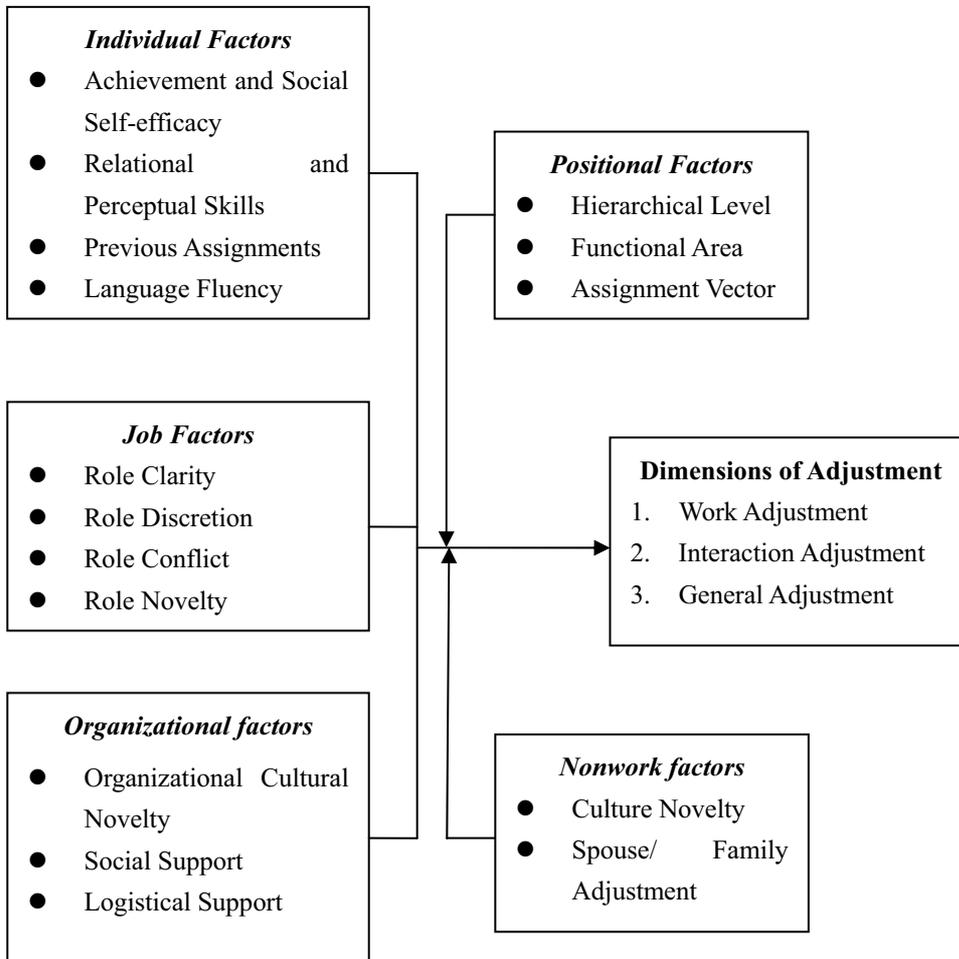
Variables	Mean	SD	1	2	3	4	5
1. General adjustment	3.78	.679	1.00				
2. Interaction adjustment	3.77	.784	.69**	1.00			
3. Work adjustment	3.99	.688	.42**	.48**	1.00		
4. Psychological adjustment	3.90	.447	.50**	.36**	.21	1.00	
5. Cultural distance	3.40	.654	-.31**	-.33**	.04	-.22	1.00

** Correlation is significant at the 0.01 level (2-tailed)

Table 4. Linear regression analysis for testing direct effects of cultural distance on adjustment

	Japanese in China	Americans in China	Standardized regression coefficients		
	Mean (SD) n=41	Mean (SD) n=53	Beta	F	Sig.
General adjustment	3.90 (.666)	3.68 (.680)	-.293**	4.884**	.010
Interaction adjustment	3.84 (.782)	3.72 (.789)	-.344**	5.324**	.002
Work adjustment	3.86 (.722)	4.08 (.653)	-.018	1.193	.308
Psychological adjustment	3.88 (.388)	3.92 (.487)	-.274	3.158	.047
Cultural distance	3.12 (.604)	3.59 (.622)			

** Correlation is significant at the 0.01 level (2-tailed)



Adapted from Black et al. (1991) and Shaffer et al. (1999).

Figure 1. Determinants of Adjustment to International Assignments



The Crisis Management on Small and Medium Real Estate Enterprises in the Background of Financial Crisis

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Abstract

By crisis management theory, this paper analyzes the risk of facing a crisis in small and medium real estate enterprises in the background of financial crisis, points out the importance of crisis management. Crisis management capability can be used as a strategic resource, it can enhance the change awareness of enterprises and rapid response capabilities, and its essence can be understood as a concept, a strategy and a habit. This paper carries out crisis management of small and medium real estate enterprises from the strategic height, and highlights the strategic adjustment in crisis management. At the same time, this paper in addition to emphasis on commonly used methods of crisis management, but also probes the new ways of crisis management of small and medium real estate enterprises from five aspects. The crisis management in the small and medium real estate companies also there are reference value to other companies.

Keywords: Financial crisis, Small and medium real estate enterprises, Crisis management, Strategic adjustment

The so-called small and medium real estate companies is the smaller (Development area less than 100,000 square meters each year), a lower value, employees less, qualification with the two following real estate development company. (Chen Linjie, 2007)China has a large number of real estate enterprises, but over 95% of small and medium real estate companies, the amount of its development nearly 80%.At present, small and medium real estate companies generally inefficient, relying on consumption of land resources and housing prices to obtain benefits, in particular by the financial crisis, faced a survival crisis and development difficulties. Therefore, the study about small and medium real estate company's crisis management approach in the background of financial crisis, will help promote them to seize opportunities during difficult times and smooth out the financial crisis and achieve continuous development purposes.

1. An Important Role to Carry Out Crisis Management

The financial crisis influence on China's real estate business is enormous, and crisis management is essential.

1.1 Small and Medium Real Estate Enterprises are Facing Crisis in the Background of Financial Crisis

There are a lot of research on the financial crisis at home and abroad, generally agreed that higher interest rates and real estate market cooling is the direct cause of the crisis, illegal lending, ignoring credit risk control and monitoring failure is the main reason for the crisis generated. Zhao Sanhua(2008) considered that the excessive financial support triggered a real estate bubble: a long-term low interest rate policy to increase consumer demand for real estate, real estate, as an anti-inflation, liquidity, a good hedge commodity, naturally become more desirable investments. Financial excessive support stimulated speculative demand for real estate. The irrational expansion of bank credit further intensified the crisis in the real estate industry. Shen Yanbing (2009) considered that China's real estate main financial risks are: First, an overheated real estate market there is market risk, and second, the real estate development companies with high debt operations implied financial risk. This paper argues that the real estate market will happen to linkage reaction during the financial crisis, see Tab1. In the context of the financial crisis, real estate enterprises are facing multiple crises, see Tab2.

Insert Tab1 here

Insert Tab 2 here

1.2 The Important Role For Small and Medium Real Estate Enterprises to Carry Out Crisis Management

In the context of the financial crisis, the real estate business in a situation unpredictable environment, the challenges and opportunities is co-exist, development and crisis is co-exist, to carry out crisis management plays an important role , it can enable enterprises turn "dangerous" to "security" , maintain the competitiveness and ensure the normal conduct of business. To strengthen crisis management can enable enterprises turn "dangerous" to "opportunities", find a new development opportunity and new development space from the crisis, and achieve new development. (Pi Weibing, 2007)

2. The Nature of Crisis Management of Small and Medium Real Estate Enterprises

Crisis management capabilities can be viewed as a strategic resource, it can enhance their awareness of the changes, improve rapid response capabilities, its nature can be understood as a concept, a strategy, a habit.

2.1 Crisis management is a Philosophy

It requires small and medium real estate companies must establish a clear sense and concept of crisis management, place crisis prevention the primary place on crisis management, truly realize the "take every precaution at beginning". And conduct a full range of analysis and prediction of the crisis from product, price, market, reputation, finance, assets, personnel, information, in the course of business, make various preparations in advance, eliminate the crisis in the early bud. As a concept, crisis management should be shared by the members of the same enterprise as corporate values, corporate culture and so on, directly reflects the business philosophy of long-term survival.

2.2 Crisis Management is a Strategy

It requires small and medium real estate companies must carry out crisis management from a strategic perspective. In the context of the financial crisis, the ability that real estate enterprises effectively manage the crisis and eliminate the dangers of the crisis will become a major competitive advantage. By identifying problems from the crisis, the strategic adjustment of the existing resources and the organizational structure will effectively improve the enterprise's core competitiveness.

2.3 Crisis Management is a Habit

It requires small and medium real estate companies must develop a series of good behavior in crisis management. And should establish a system of effective crisis management mechanisms, which including sensitive early warning system, pre-control system, implementing system, summarizing system, regaining system, to enable enterprises to quickly go back on the healthy development track.(Li Jihong,2005)

3. To Carry Out Crisis Management from a Strategic Perspective

Strategy determines the overall, small and medium real estate companies deal with the financial crisis, the election must first be strategic adjustment, to develop forward-looking strategies to meet its own conditions.

3.1 Crisis Management Must Be Combined With the Strategic Adjustment

Small and medium real estate companies must pay close attention to the developments in the real estate market in the context of financial crisis, strengthen the market analysis and research, grasp the law of the real estate market development, understand and capture market opportunities, analysis and exclude potential and face crisis, crisis management and strategic management will be closely integrated. It is necessary to carry out routine maintenance of corporate crisis management operation, but also to focus on the future of the strategic adjustment, see Figure (1), timely adjustments to business direction and strategy

to promote the orderly development of business.

Insert Figure 1 here

3.2 The Strategic Adjustment of Response to the Crisis is Mainly Reflected in Three Aspects

One is to establish a strategic adjustment control system to control risk. To adjust the corporate structure, establish an efficient management style, seek the next lasting management in the crisis; to establish a refinement management system, create a highly professional team, support the operation of the strategic adjustment. Second is to grip the breakthrough of strategic adjustment for the purpose of funds security. It should be quick sale, cautious expansion, establish smooth and effective marketing system, rapid return of funds to ease the funding crisis, to prevent blind expansion or stalled, during the financial crisis the light land price and land transactions, capital adequacy can choose the right moving to access to development opportunities. The third is to enhance the strategic adjustment strength for the fundamental of enhance their core competitiveness. Small and medium real estate companies must conduct an objective analysis to the resources ability of their own, strengthen their own capacity to create added value and professional capacity in product design, project schedule, quality control, cost control and marketing planning and many other areas, and strengthen its core competitiveness, and enhance their competitive edge, increase the strategy

transformation capacity of corporate to respond to a adjustment period of the market changes.(Chen Linjie,2009)

4. To Explore New Approaches to Crisis Management of Small and Medium Real Estate Companies

The usual way of small and medium real estate business crisis management is to attach great importance to the dangers of the financial crisis, strengthen risk prevention awareness, through active innovation and upgrading to improve crisis prevention and response capabilities. In the strategic restructuring, independent innovation is the fundamental, change in the market and product structure is the means, human resources optimization is an opportunity, fund is blood. At the same time, supporting crisis management mechanism: prior to the crisis must be reasonable to avoid; in the crisis in a powerful control; in resolving the crisis must be resolute and firm; in times of crisis recovery gung ho. In addition, small and medium real estate business the worth exploring way of crisis management are the following.

4.1 Adopt the "Manufacturing" Model to Develop Real Estate

This is a standardization of the housing product manufacturing, component-based, factory, is the development direction of housing industry. By this mode Vanke do real estate development, in this financial crisis promptly adjust its strategy to reflect market conditions take the initiative to strain: One is to increase the proportion of medium and small-family, 90 square meters account for more than 40% below; Second is active price reductions , fast repatriating their capital, Vanke has increased market share in the context of financial crisis; Third is cooperation other well-known with the Haier household appliances business, that "a comprehensive home solution", starting from the customer demand, have done a comprehensive reform to achieve a true sense of the domestic product reengineering to family design, kitchen equipment, storage systems, intelligent system, etc.

4.2 Development Quality Products and Value-Added Services

Financial crisis market adjustments to the real estate companies have also a good time, you can slow down the pace of the product in a more detailed, so that a higher product price, higher value-added. Vantone real estate company practice in the United States real estate development model is a refinement, professional development model, and to the owners of its rough residential projects launch a range of value-added services of including interior design, decoration of construction, electrical and mechanical transformation, custom furniture, accessories choice, etc, to avoid risks and achieve sustainable steady development.

4.3 Strategic Focus to Industrial Real Estate, Commercial Real Estate, Location to A Small Town

Over the years, the real estate market macro-control policy is designed to curb residential investment and speculation. Strategic focus to commercial real estate and industrial real estate may well be wise to risk diversification. Medium and small real estate business, its prospects are not on competitive first-line or second-line cities in real estate, but in relatively good economic conditions that have a professional market in small towns. If carrying out a full investigation, study and feasibility analysis, the project development mode directly transfer from large cities to small towns, it is possible to benefit quite good in a crisis.(Deng Yunan,2008)

4.4 Capital Markets Nuggets, Through The Diversification of Investment To Spread the Risks

Transfer and sharing real estate investment risks can rely on Real estate financing channel diversification and securitization. To broaden the financing channels for real estate enterprises to reduce dependence on bank loans. (Fan Pengtao, 2008) In addition to listing, there are many companies issue corporate bonds to raise funds several hundred billion dollars. In addition, there are few enterprises in trying to finance real-estate trusts. Due to the uncertain prospects of the real estate industry in the background of the financial crisis, many small and medium real estate enterprises to invest in mining, energy and financial shares, to take "appropriate diversification" of the business strategy to diversify and release investment risk.

4.5 Knowledge Management Response to the Financial Crisis

First, focus on a more perfect system of knowledge management system, and comb, accumulate organization knowledge resources, enrich the contents of the knowledge base, enhance its quality and wait for economic recovery to promote the organization grew rapidly. Second, strengthen staff training, increase human capital and knowledge assets. Third, assess the knowledge value of employees might be laid off, to ensure those organizational development essential knowledge experts will not be intentionally or unintentionally cut. Fourth, attract knowledge experts of competition in the financial crisis a "bargain-hunting talents." Fifth, actively through knowledge innovation for the enterprise the first out of the woods to provide new ideas, turn crises into opportunities to win sustainable competitive advantage.

5. Conclusion

The context of the financial crisis, small and medium real estate enterprises are faced with the crisis in a variety of risks, it is essential to carry out crisis management. Crisis management capabilities can be viewed as a strategic resource, it can enhance their awareness of the changes, improve rapid response capabilities, its nature can be understood as a concept, a strategy and a habit. To carry out the crisis management from a strategic height, combined with the strategic

adjustment is very important, highlighted strategic adjustment in crisis management. At the same time, in addition to commonly used risk management methods, it should also be from the five areas to look at small and medium real estate companies new ways of crisis management.

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Table 1. The process of the financial crisis and the real estate market linkage reaction

The financial crisis process	The real estate market linkage reaction
Gestation period of the crisis	The real estate market is very active in
Development period of the crisis	Excessive heat up the real estate market, real estate development in the credit derivatives crazy
Crisis period	Interest rates led to breakdown of the real estate market, real estate market into low, the financial crisis

Table 2. In the context of the financial crisis, real estate enterprises are facing multiple crises

The main risk Crisis		Specific Performance
Purchasing power risk		Financial crisis led to economic crisis, house prices falling, buyers waiting, purchasing power declining
Financial risk	Funding risk	Falling house prices, bank lending with caution, real estate enterprise financing has become difficult
	The risk of paying back the principal in arrears	Buyers decline in revenue, ability to pay down
Interest rate risk		Rate hike will increase the cost of capital, thus increasing development costs and purchase costs
Liquidity risk		Real estate development cycle is long, occupying more than money, housing is difficult to promptly shot in the crisis
Operational risk		Corporate strategy adjustment, crisis management is not timely and inappropriate
Social risk		Unemployment rising, social instability increasing

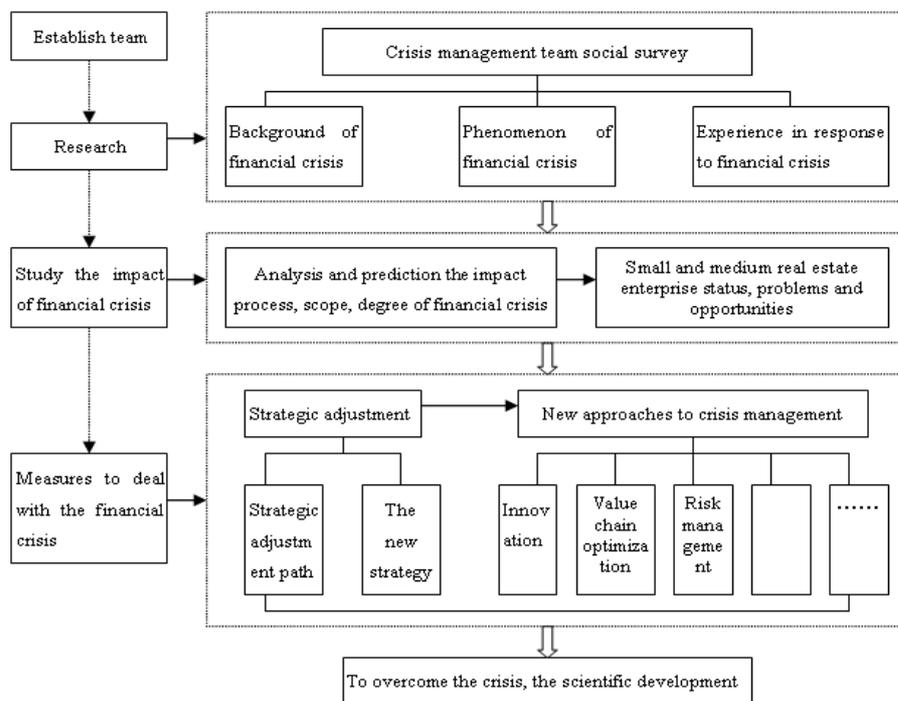


Figure 1. Crisis management and strategic adjustment



A Comparison of Business Negotiation Behavior between Korea and China

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Abstract

With the establishment of Korea and China's diplomatic relationship in 1992, the business activities between Korea and China show the trend of booming during this decade; these two countries have become close trading partners to each other. The process from "strangers" to close friends in business just happened during this decade. The reason why these two countries have been so close in business is because of the geographic advantage and similar cultural roots, Confucianism. Though these two countries have similar cultural roots, due to different social backgrounds, there are still differences in their business cultures.

Therefore, this paper picks negotiation as the core and does some comparisons about negotiation behavior between Koreans and Chinese, aiming to provide some useful reminders when conducting business activities in these two countries, for negotiation is the constant factor in business life.

Keywords: Culture, Negotiation behavior, Korea, China

1. Background of the Study

Korea and China are historically and geographically closely related. The cultural contacts between Korea and China have an age-old history. From the ancient times there were already many legends about it and till the Qing Dynasty, there were many tales of friendship between these two countries. Confucianism especially has a very deep influence on Korean society from the establishment of the Lee Dynasty in 1392. So Koreans and Chinese have the same cultural roots, which still have the distinctive effect on their business culture.

On the other hand, with the establishment of a diplomatic relationship in 1992, the trade activities between Korea and China have become extended significantly and rapidly. In 2000, China was the third biggest trade partner of Korea and from 2003-2007, China was the first biggest trade partner to Korea. And then, Korea was the Sixth biggest trade partner to China in 2008.

So with the booming trend of business activities between Korea and China, it is essential to have knowledge of business culture, especially manner and characteristics of negotiation between Korea and China for starting business smoothly in these two countries due to its utmost importance in business activities.

2. Research Model Specification and Propositions

All researchers describe negotiation as a process extensively. Negotiation is divided into three phases, namely the antecedent phase (in which the new pre-negotiation planning and preparation component resides), the concurrent phase, and the consequent phase; Graham (1987) posited this. It has been the sum and substance for researching business-to-business negotiation in the marketing domain (Peterson and Lucas, 2001).

In practice, negotiation should be viewed as a process, for the actions taken before and after the actual conduct of negotiation all have influence on the negotiation behavior. Graham's (1987) conceptual framework is comprised of three concepts: (1) negotiator characteristics and situational constraints; (2) factors directly related to the process of negotiation; and (3) negotiation outcomes. Figure 1 is the refined negotiation process model of Graham by Peterson and Lucas in 2001.

2.1 Research Model Specification

Insert Figure 1 here.

Since this paper is made on the cross-cultural perception, so based on Figure 1, the research model of this paper is formed as below: Insert Figure 2 here.

2.2 Proposition

2.2.1 Culture with Preparation

Hofstede (1991) suggested national culture might affect one's negotiation.

According to Lewicki and Litterer (1985), the most important success factors in negotiation are preparation and planning. With effective planning and goal setting, most negotiators can achieve their objectives; without it, results occur more by chance than by what the negotiator does. The importance of careful preparation for cross-cultural negotiations is emphasized. Since most negotiation problems are caused by differences in culture, language, and environment, hours or days of tactical preparation for negotiation can be wasted if these factors are not carefully considered.

Thus, in order to achieve the group's goal well, individuals might like to devote more effort into the pre-negotiation. In masculine culture, since competitiveness is highly valued, so success is important to the negotiators. The individual negotiators cannot stand failure, so good preparation might be done in the pre-negotiation stage.

P1: The characteristics of national culture might affect the level of preparation.

"The pre-negotiation stage is often more important than the formal negotiations in an international business relationship. Social, informal relationships developed between negotiators at this stage can be of great help. Trust and confidence gained from these relationships increase the chances of agreement" (Ghauri, 1996). It is quite easy to understand if one negotiator has met the partners before the formal negotiation and is assumed to have had pleasant conversation; so when they conduct the formal negotiation, they are not strangers to each other but friends, then negotiation process will be more smoothly and the preparation also might cultivate confident behavior during the negotiation process.

"Preparation is vital to negotiating successfully" (Bob, 2002). The impact of national culture on pre-preparation will directly affect the performance of negotiator in cross-cultural negotiation, for if the negotiator has considered the cultural differences during the preparation, then less cultural conflict will arise during negotiation process, and the partners will feel comfortable to conduct negotiation for they will feel their culture has been respected and coordinated; and all these indirectly affect the negotiation outcome.

P2: Preparation might reduce cultural shock and have impact on negotiators' performance during the negotiation process.

2.2.2 Culture with Negotiation Process

"The impact of culture on the negotiating process has intrigued both scholars and practitioners" (Salacuse, 1999). Culture differences will impact negotiation in various ways, especially in cross-cultural negotiation, for "negotiation is one of the most challenging communication tasks in business" (Gilsdorf, 1997). Insert Table 1 here.

Everybody communicates all the time. No matter what one is talking about, when the individual talk to others it is called communication. In a negotiation setting, when a negotiator negotiating with another party, making concession, bargaining, persuading and arguing, etc., all of these belong to the process of communication. Communication is affected by the culture due to different cultural perspective.

"Negotiation practices differ from culture to culture" (Weiss, 1994). It is quite clear that culture may affect how individuals perceive the nature and function of negotiation. Each element of culture will be interpreted in a totally different way. It is quite clear these various interpretations have various effects on the negotiation style. In the preparation step, the cultural differences are just written on paper, but during the negotiation process all of those differences will be reflected by the various negotiation behavior of the partners. If these cultural differences could not be well treated and respected, then conflict can easily rise. So in order to conduct the negotiation smoothly, negotiators have to coordinate with the other party's negotiation style.

P3: National culture might affect the manner and characteristics of negotiators during the negotiation process.

As mentioned above, it is easy to understand that what happens during the negotiation process might affect the negotiation outcome. "Process variables address what actually takes place when parties come together for discussions; these behaviors comprise are generally viewed as the central determinant of the negotiation outcome" (Peterson and Lucas, 2001). Various negotiation behaviors due to different cultural background will cause problems and conflict. Cultural differences are the main factors of the negotiation process, which affect the outcome of a cross-cultural negotiation.

P4: Cultural differences exhibited during the negotiation process might affect the success of the negotiation outcome.

3. Methodology

A qualitative method was used with the application of case study to develop the research.

3.1 Literature Review

The research model of this paper is formed on the basis of refined Graham (1987) negotiation process model by Peterson and Lucas (2001). In the model, Graham identified that negotiators' characteristics and situation constraints are antecedents of pre-negotiation and also have impact on the negotiation process, in which the negotiator's characteristics includes age, experience, gender and national culture. And the pre-negotiation is the antecedent of negotiation process; the negotiation outcome is the interaction of pre-negotiation and the negotiation process.

This paper is made on purpose to identify the cultural impact on the negotiation outcome, so national culture is chosen as a key antecedent factor that serves as a determinant affecting the negotiation in cross-cultural setting.

3.2 Selection of Cases

The purpose of case study is to examine the cultural differences on negotiation behavior and their consequences on negotiation outcome. So the sample of case should have experience of negotiating with Korean, in order to effectively judge the practical meaning of the propositions.

Three Chinese who once had experienced negotiating with Koreans were chosen as samples. In Case 1, a boss of a private company who specialized in exporting agricultural products to Korea for years was chosen as a sample. His company is a small-sized company with totally about 30 employees, which is located in Qing Dao City, Shang Dong Province, China. In Case 2, a technological expert who has been working in Lang Chao LG Digital Telecom Technology Company for more than two years with the experience of negotiating with Koreans was chosen as a sample. The company is a middle-sized Korea-China joint venture located in the Yan Tai City, Shang Dong Province of China, specializing in producing CDMA cell phone with about 500 employees. In Case 3, an employee from the purchasing department of Simens Automobile Electronics Chang Chun Branch was chosen as a sample, who has worked there for more than three years. The company is a middle-sized German single venture located in Chang Chun City, Ji Lin Province, China, specializing in producing electronic spare parts of automobile with about 600 employees.

3.3 Method of Data Collection

The method of data collection is important to decide how much the data can reflect the reliability of the study.

Due to area limitations, phone interviews were conducted instead of actual interviews. All the relevant questions were summarized on a list before the phone interview, and the questions were asked one by one in detail, certainly the minutes was also done at the same time.

4. Case Study

4.1 Comparison of Cross-Cultural Negotiation Behavior

The table below gives a summary of the comparison of cultural differences between Korea and China through the three cases. Insert Table 2 here.

4.2 Observations of Propositions

The observations of propositions are obtained through the application of three cases. From the three cases, it is known that both Koreans and Chinese prefer careful preparation due to aversion to risk. And preparation will affect negotiators performance during the negotiation process. Brief observations are list below: Insert Table 3 here.

5. Conclusion

This paper has stated the difference of negotiation behavior between Koreans and Chinese on cross-cultural perception, together with the application of the case study, resulting in identifying the culture impact on negotiation outcomes. Because of the same cultural roots, Korean and Chinese business cultures have many similarities, but due to different cultural evolution and development, there are still some dissimilarities existing.

The result of comparison here is that, there are more similarities and less dissimilarity. But the comparison still has practical meaning. For example, a Japanese negotiator or an American negotiator may think Korea and China have similar cultural backgrounds, and then if they conduct a negotiation in Korea totally in the same manner as they conduct negotiation in China, it would not be workable. Because similar does not always mean equal, so the more similar the cultures are the more necessary the comparison is, for even a tiny cultural difference might affect your negotiation.

The business activities occurring between these two countries are increasing rapidly, so possessing knowledge of business cultures of Korea and China is essential indeed. This is the primary skill for the businessmen in these two countries should hold.

"Culture clearly influences each aspect of negotiation. Culture also influences the composition of the side, nature of communication, mutual perceptions, the structure of negotiation, the style of bargaining, and use of the interveners. Finally, it determines the nature of the outcome and the form of agreement" (Bangert and Pirzada, 1992).

The impact of cultural variances could not be totally eliminated in cross-cultural negotiations. Hence, any step of this

type of negotiation should take cultural factors into account if satisfied outcome are targeted.

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Table 1. Culture and the Art of Negotiation

		Within one Culture		Between Cultures	
Negotiator	Process	Easier	Process	More difficult	
	Agreement	More difficult	Agreement	Improved likelihood	
Intervener	Process	Easier	Process	More difficult	
	Agreement	More difficult	Agreement	Improved likelihood	

Source: Bangert and Pirzada (1992)

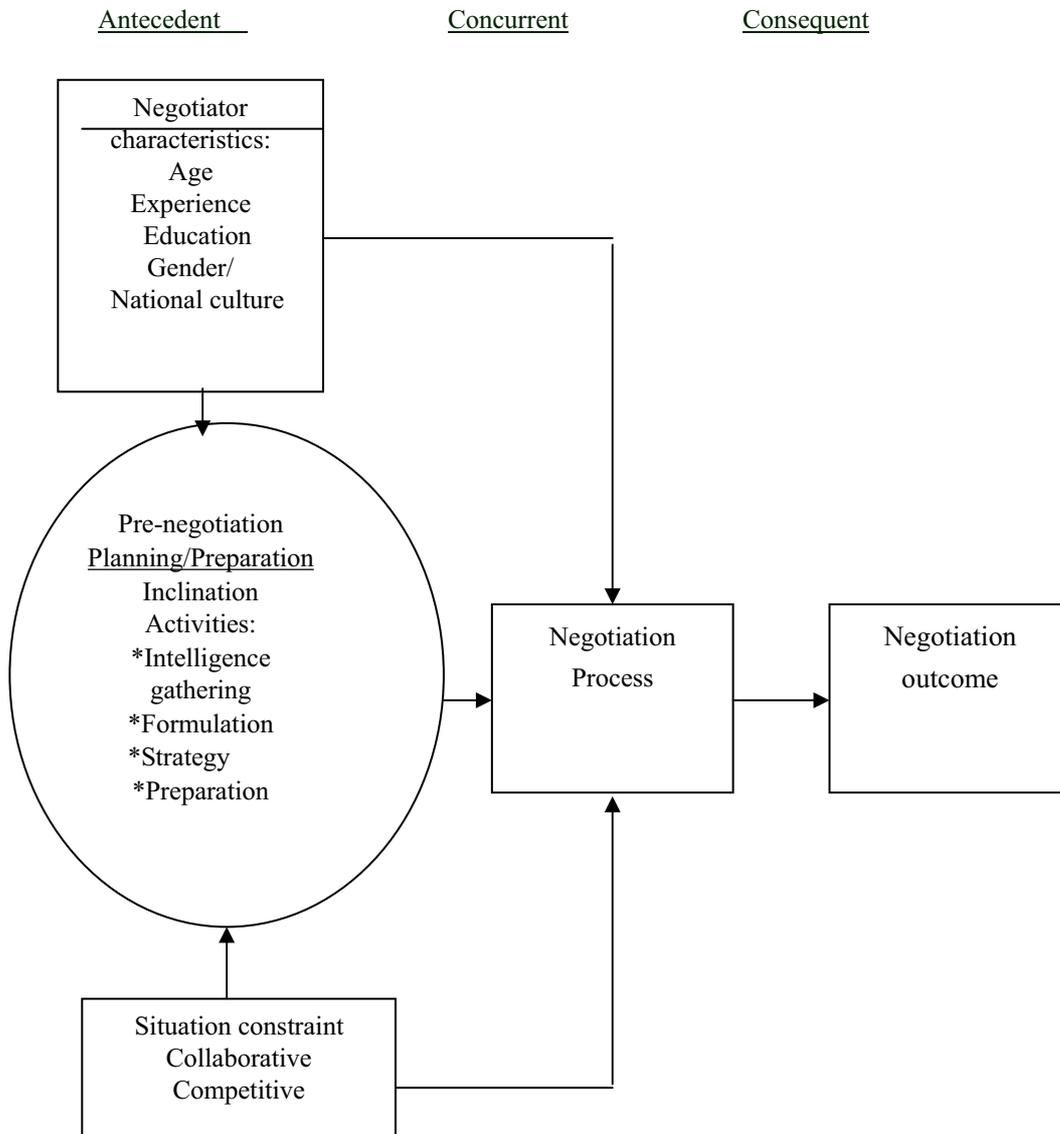
Table 2. Quick Reference Chart of Culture Differences between Korea and China

	Korean		Chinese	
	Characteristics	Cultural background	Characteristics	Cultural background
Preparation	Well preparation will be done in pre-negotiation phase.	Masculinity / Uncertainty Avoidance	Do preparation.	Masculinity / Uncertainty Avoidance
Status	Pay attention to hierarchy. So when negotiate, sent the negotiators with similar or equal rank to match with your partner.	Power Distance	Pay attention to hierarchy. So when negotiate, sent the negotiators with similar or equal rank to match with your partner.	Power Distance
Company profit	Company profit is the main concern of the negotiators.	Collectivism	Company profit is the main concern of the negotiators.	Collectivism
Risk aversion	Afraid of risk, prefer written regulation and rules.	Uncertainty Avoidance	Afraid of risk, prefer written regulation and rules.	Uncertainty Avoidance
Grand of Negotiator	Nearly only men are engaged in business field, male and female have unequal right in the society.	Masculinity	Both of man and woman are engaged in business field, male and female have same right in the society.	Masculinity
Culture Adaptation	Compare with its neighbor China and Japan, Korea is more intense in nationalism, special for F&B product, they prefer much "Made in Korea."	Nationalism	Like to adapt other culture forms.	Nationalism
Cross-cultural communication	Prefer grasps answers from informal interactions and non-verbal cues.	High-context culture	Prefer grasps answers from informal interactions and non-verbal cues.	High-context culture

Problem-solving Approach	Clever and forceful. Their politeness masks a shrewd, never give up, and never lose business sense. Solve conflict directly.	Affect expression	Clam, very quiet and thoughtful; Relies heavily on subjective feeling and personal experiences. Solve conflict in an indirect way.	Affect expression
Affect	Negotiators are aggressive, quick to express anger and frustration.	--	Emotional restraints is held in high esteem; calmness is highly valued which signals sincerity, seriousness and competence.	--
Patient	Irritable and can not stand a long time period negotiation.	--	Patient.	--
Bidding	Offer a reasonable price at first	--	Offer a higher price, then bargain and make concession little by little.	--
Decision making	Prefer group consensus, tend to be very conservative and risk averse; but be quick at decision making.	Collectivism/ companies in Korea are still run by private	Prefer group consensus; also very risk averse; slow and methodical with decision making.	Collectivism/ Stems for their fears of "losing face"; quick decision is somewhat a cue of incapability

Table 3. Observations of Proposition

Proposition	Observation
P1	Careful preparation would be done due to the aversion of risk;
P2	Preparation has both of positive and negative impact on negotiation process
P3	Different national cultures result in various negotiation performance during negotiation process
P4	Process variables determine the negotiation outcome, especially cultural factors



Source: Peterson and Lucus (2001)

Figure 1. Theoretical Framework of Negotiation Process Model

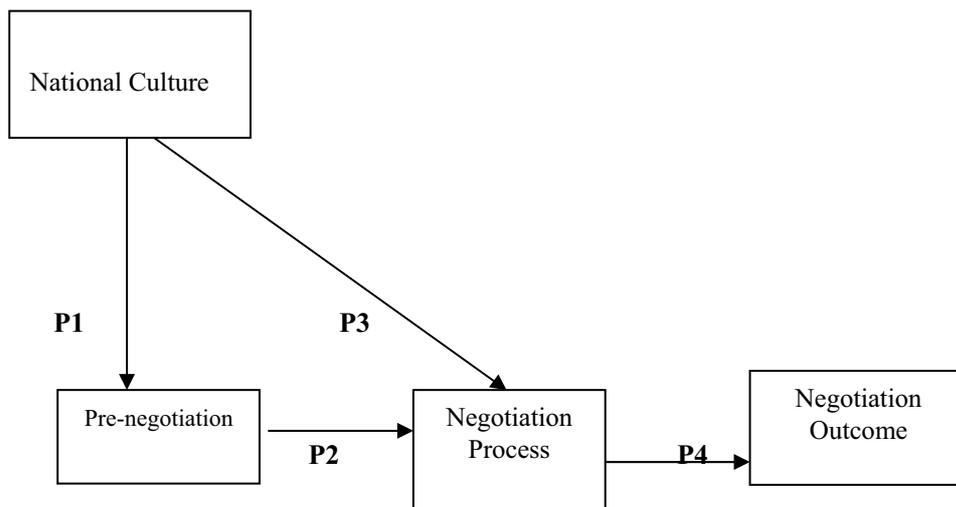


Figure 2. Research Model



Appraisal of Capital Market Efficiency on Economic Growth in Nigeria

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Abstract

The paper is an appraisal of the impact of capital market efficiency on economic growth in Nigeria, using time series data on market capitalization, money supply, interest rate, total market transaction and government development stock that ranges between 1961 to 2004. The model specification for the analysis of data is multiple regression and ordinary least squares estimation techniques. The result of the study shows that the capital market in Nigeria has the potentials of growth inducing, but it has not contributed meaningfully to the economic growth of Nigeria. This is as a result of low market capitalization, low absorptive capitalization, illiquidity, misappropriation of funds among others. The empirical test indicates that, these variables satisfied the economic apriori and are statistically significant except total transactions and money. Thus it was concluded and recommended that, the capital market remain one of the mainstream in every economy that has the power to influence economic growth, hence the organize private sector is encourage to invest in it. This will enable the capital market improve its illiquidity status for economic growth and development. Therefore the government must contribute in order to achieve these objectives through investing government securities in productive sectors and relaxing laws that spell threat to the capital market.

Keywords: Capital market, Illiquidity, Market capitalization, Economic growth, Securities

1. Introduction

Virtually all aspects of human endeavour entail the use of money either self-generated or borrowed. Money enhances capital accumulation with tremendous cyclical rebound on economic growth. In capital market, the stock in trade is money which could be raised through various instruments, under well governed rules and regulations, carefully administered and adhered to by different institutions or market operators. It is true that the rate of economic growth of any nation is inextricably linked to the sophistication of its financial market and specifically its capital market efficiency. Virile financial markets assist the nations of the world to muster needed financial resources and skills for growth and development. Equity markets in developing countries until the mid-1980s generally suffered from the classical defects of bank dominated economies that are shortage of equity capital, lack of liquidity, absence of foreign institutional investors, and lack of investor's confidence in the stock market (Adebisi, 2005). Financial market and its sub-unit, capital market are constituted when ever participants, with the aid of infrastructures, technology and other devices to facilitate the mobilization and channeling of funds into productive investment. The importance of capital market lies in its financial intermediation capacity to link the deficit sector with the surplus sector of the economy. The absence of such capacity robs the economy of investment and production of goods and services for societal advancement. Funds could thereby be idle at one end, while being sought at the other end in pursuit of socio-economic growth and development (Akinbohunbe, 1996).

The knowledge that capital market can make a wealthy nation and wealth people is the concept and believe this paper portrays. Universally, capital markets are primarily created to provide avenues for effective mobilization of idle funds from surplus economic units and channeled into deficit units for long-term investment purposes. The suppliers of funds are basically individuals and corporate bodies as government rarely supply funds to the market. The deficit units by contrast consist only of corporate bodies and government. In other words, individuals (households) who are major suppliers of funds to the market are absent in the category of fund users. This is because conventionally, individuals cannot access the capital market for funds. Moreover, capital markets through secondary arms, provide opportunities for the purchase and sale of existing securities among investors thereby encouraging the populace to invest in securities and fostering economic growth.

The funding requirements of corporate bodies and governments are often colossal, sometimes running into billions of naira. It is therefore, usually difficult for these bodies to meet such funding requirements solely from internal sources,

hence they often look up to the capital market. This is because the capital market is the ideal source as it enables corporate entities and government to pool monies from a large number of people and institutions. Thus the socio-economic function of the capital market is well established. It does not only encourage and mobilize savings but also efficiently allocates such savings to areas of need (Ekinah, 1996).

The Nigeria capital market is categorized into primary and secondary markets. New securities are issued in the primary market, and companies issuing these securities receive the proceeds for the sale. The secondary market provides a forum for the sale of securities by one investor to another investor. Thus, the efficient functioning of the market paves way for the primary market by making investors more willing to purchase new securities in anticipation of selling such in the secondary market. These securities are the major instrument used to raise funds at the capital market.

The institutional framework through which the capital market function in Nigeria include; the Nigerian securities and exchange commission (NSEC), the Nigerian stock exchange (NSE), stock brokers and investors. The main objective of establishing the Nigerian capital market is to mobilize savings from numerous economic units for economic growth and development, provide adequate liquidity to investors, broaden the ownership base of assets as well as the creation of a buoyant private sector, provide alternative source of funds for government, others are to encourage more efficient allocation of new investments through the price mechanism, encourage more efficient allocation of a given amount of tangible wealth through changes in the composition and ownership of wealth, create a built-in efficiency in the operations and allocation in the financial system to ensure optimal utilization of resources, and promote rapid capital formation .

In the light of the above objectives, the point of departure of this study is to evaluate the level of development and efficiency of the Nigeria capital market and how it has impacted on Nigeria's economic growth and development in the face of capital market reforms. For purposes of logical sequence and presentation, the paper is divided into introduction, development of the Nigerian capita markets, theoretical underpinning, appraisal of the capital market in Nigeria, methodology of the study, data analysis and discussion of results, regression result and analysis, conclusion and recommendations.

1.1 Development of the Nigeria Capital Market

The development of the Nigeria Capital Market dates back to the late 1950s when the Federal Government through its ministry of industries set up the Barback committee to advise it on ways and mean of setting up a stock market. Prior to independence, financial operators in Nigeria comprised mainly of foreign owned commercial banks that provided short-term commercial trade credits for the overseas companies with offices in Nigeria (Nwankwo, 1991). Their capital balances were invested abroad in the London stock Exchange. Thus, the Nigeria Government in an attempt to accelerate economic growth embarked on the development of the capital market. This is to provide local opportunities for borrowing and lending of long-term capital by the public and private sectors as well as an opportunity for foreign-based companies to offer their shares to the local investors and provide avenues for the expatriate companies to invest surplus funds.

Based on the report of the Barback Committee the Lagos Stock Exchange was set up in 1959. With the enactment of the Lagos Stock Exchange Act 1961, it commenced business in June, 1961 and assumed the major activities of the stock market by providing facilities for the public to trade in shares and stocks, maintaining fair prices through stock-jobbing and restricting the business to its members. The Lagos stock exchange was renamed the Nigeria Stock Exchange in 1977, with the following objectives;

- 1) To provide facilities to the public in Nigeria for the purchase and sale of funds, stocks and shares of any kind and for the investment of money.
- 2) To regulate the dealings of members interest and those of their clients.
- 3) To control the granting of a quotation on the stock exchange in respect of funds, stocks and shares or any company, government, municipality local authority or other corporate body.
- 4) To promote, support, or propose legislative or other measures affecting the aforementioned objectives.

According to its Memorandum and Articles of Association, the Exchange is incorporated as a private non-profit organization limited by guarantee to undertake three basic functions, which include;

- 1) Provide trading facilities for dealing in securities listed on it.
- 2) Oversee activities relating to trading in securities.
- 3) Enhance the flow of long-term capital into productive investment and ensuring fairness of prices at which quoted securities are traded.

Initially trading activities commenced with two Federal Government Development Stocks, one preference share and three domestic equities. The market grew slowly during the period with only six equities at the end of 1966 compared

with three in 1961. Government stocks comprised the bulk of the listing with 19 of such securities quoted on the Exchange in 1966 compared with six at the end of 1961. (Nnanna, Englama and Odoko, 2004). Prior to 1972 when the indigenization exercise took off, activities on the Nigeria stock exchange were low. That was true both in terms of the value and volume of transactions. For instance, the value of transactions grew from N1.49million in 1961 to N16.6million in 1971. Similarly, the volume of transactions grew from 334 to 634 over the same period. Though the bulk of the transactions were in government securities, which were mainly development loan stock through which the government raised money for the execution of its development plans. Accordingly, with the promulgation and implementation of the Nigeria Enterprises Promotion Decree of 1972, which its principal objectives include; promoting capital formation, savings and investment in the industrial and commercial activities of the country, the low level of activities in the stock market increased as Nigerians gained the commanding heights of the economy.

However, following the criticisms that the Nigerian stock Exchange was not responsive to the needs of local investors, especially indigenous businessmen who wished to raise capital for their businesses, the NSE, introduced the Second-Tier Securities Markets (SSM) in 1985 to provide the framework for the listing of small and medium-sized Nigeria companies on the Exchange. Six companies were listed on this segment of the stock market by 1988 and by 2002 over twenty-three companies had availed themselves of the opportunities offered by this market (Nnanna, Englama and Odoko, 2004).

The major instruments/products available in the Nigerian capital market to date include; the industrial equities otherwise referred to as ordinary shares; industrial loans such as debentures, unsecured zero coupons, preference bonds/stocks, specialized project loans/infrastructural loans, government stocks/bonds, unit trust schemes, unlisted corporate/industrial loans stock, among others. The market is currently divided in to two broad categories, namely equities and debt markets. The former are instruments or products that confer ownership rights on the investor, while the later are interest-bearing obligations with fixed or floating interest-rates. Refer to figure 1 in the appendix section.

2. Theoretical Underpinning

Capital market is defined as the market where medium to long-term finance can be raised (Akingbohunge, 1996). In another exposition, Ekezie (2002) noted that capital market is the market for dealings (i.e. lending and borrowing) in longer-term loanable funds. Mbat (2001) described it as a forum through which long-term funds are made available by the surplus to the deficit economic units. It must, however, be noted that although all the surplus economic units have access to the capital market, not all the deficit economic units have the same easy access to it. The restriction on the part of the borrowers is meant to enforce the security of the funds provided by the lenders. In order to ensure that lenders are not subjected to undue risks, borrowers in the capital market need to satisfy certain basic requirement. It has very profound implication for socio-economic development of any nation. Companies can finance their operations by raising funds through issuing equity (ownership) or debenture/bond borrowed as securities. Equities have perpetual life while bond/debenture issues are structured to mature in periods of years varying from the medium to the long-term of usually between five and twenty-five years.

Capital market offers access to a variety of financial instruments that enable economic agents to pool, price, and exchange risk. Through assets with attractive yields, liquidity and risk characteristics, it encourages savings in financial form. This is very essential for government and other institutions in need of long-term funds and for suppliers of long-term funds (Nwankwo, 1991).

Based on its importance in accelerating economic growth and development, government of most nations tends to have keen interest in the performance of its capital market. The concern is for sustained confidence in the market and for a strong investors protection arrangement. Nigeria Securities and Exchange Commission (NSEC) is the government agency responsible for developing and regulating the Nigeria capital market. It was created by Act No. 71 of 1979 and re-acted as Securities and Exchange Commission Decree No. 29 of 1988. The NSEC purses its objectives by registering all market operators based on capital adequacy, competence and solvency as criteria.

Economic growth is generally agreed to indicate development of an economy, because it transforms a country from a five percent saver to a fifteen percent saver. Thus, it is argued that for capital market to contribute to economic growth and development in Nigeria, it must operate efficiently. Most often, where the market operate efficiently, confidence will be generated in the minds of the public and investors will be willing to part with hard earned funds and invest them in securities with the hope that in future they will recoup their investment.

The theoretical explanation on the nexus between capital market and economic growth is further explicated using Efficient Market Hypothesis (EMH) developed by Fama in 1965. According to EMH, financial markets are efficient or prices on traded assets that have already reflected all known information and therefore are unbiased because they represent the collective beliefs of all investors about future prospects. Previous test of the EMH have relied on long-range dependence of equity returns (Lo, 1991).It shows that past information has been found to be useful in improving predictive accuracy. This assertion tends to invalidate the EMH in most developing countries. Equity prices

would tend to exhibit long memory or long range dependence, because of the narrowness of their market arising from immature regulatory and institutional arrangement (Nagayasu, 2003 and Nyong, 2003). Note that, where the market is highly and unreasonably speculative, investors will be discouraged from parting with their funds for fear of incurring financial losses. In situations like the one mentioned above, has detrimental effect on economic growth of any country, meaning investors will refuse to invest in financial assets. The implication is that companies cannot raise additional capital for expansion. Thus, it suffices to say that efficiency of the capital market is a necessary condition for growth and development in Nigeria.

Levine and Servos (1996) postulated a strong positive relationship between stock market development and long-run economic growth. Further studies, showed that stock market liquidity plays vital role in the process of economic growth (Mc Kinnon, 1973, and Bencivenga, et al, 1996). Though there are other scholars who share contrary views about the performance of the capital market and its attendant effect on economic growth and development of nations. Emenuga (1998) for instance believed that the stock market is illiquid and blamed the ownership structure in the Nigeria stock market. He concluded that the stock market is small and has few listed companies, low market capitalization and low volume of transactions. Ariyo and Adelegan (2005) contend that, the liberalization of capital market contributes to the growth of the Nigeria capital market, yet its impact at the macro-economy is quite negligible. In another exposition, Gabriel (2002) as enunciated by Nyong (2003) lay emphasis on the Romanian capital market and conclude that the market is inefficient and hence it has not contributed to economic growth in Romania. Which ever school of thought, either for or against capital market as a sine qua non for economic growth all depends on the particular situation the nation is passing through and the prevailing economic indices/determinants. With financial liberalization, many of the East-Asian capital markets like Singapore, Hong Kong and Bangkok have developed over time to the extent that they are presently regarded as international centres of Asia. In contrast the past years saw comparatively little change in the capital market of sub-Saharan Africa including Nigeria.

2.1 Appraisal of the Capital Market in Nigeria

The capital market has opened the floodgate to relatively inexpensive fund surpassing the possibility of self-financing available to indigenous enterprises. Such funds are usually used for expansion of existing businesses or to cushion the effect of inflation so that businesses may continue as going concerns. It also afford indigenous enterprises and entrepreneurs the opportunity to be introduced into the economy in general through entry into the securities market. This enables shares that haven been privately held to be offered to the general market or international market for inflow of foreign investment. The entering of an indigenous company into the capital market enhance its prestige and reputation, especially its products and credit worthiness in the eyes of the public as conferred upon it by the new status. (Bayero, 1996).

The capital markets in Nigeria create a free entry and exist for investors. It is a known fact in private company that it is not easy for an investor (shareholder) to withdraw capital invested without upsetting the company capital structure. But for public quoted company, it does work not like that. As long as an investor's broker can find a prospective investor to buy the clients' shares the process is done.

One of those important functions of the capital market is to encourage indigenous enterprises to develop its peculiar technologies through accessibility to funds and expertise through international connection. This it has achieved tremendously. Moreover, most of the enterprises benefited from the implementation of the Nigeria Enterprises Promotion Acts and the privatization policies through the market. Both policies promoted indigenous enterprises, which are the main engine of economic growth and development in an economy.

Despite the capital market laudable performance and benefits, it is still beclouded with some weakness in Nigeria. The bureaucratic system of the Securities and Exchange Commission is a hindrance to smooth processing of application submitted to it. The private sector to which most enterprises belong is not used to the "leap and tumble" system of the public sector, but operates by leaps and bounds. The fee charge by the exchange are unreasonably high and constitute a great burden on enterprises/companies for whose sake the Second tier Securities Market (SSM) was established in 1985. If it is realized that the engine of economic growth and development in Nigeria rest in this sector, which is endowed with the capacity to create jobs for the unemployed, then the charges should be moderate and not appear to be punitive. Likewise the cost of hiring the services of stock brokers, registrars and issuing houses in the capital market is getting higher every now and then, but their efficiency is not commensurate to the high cost, this gives room for complaints and mistrust. The imposition of all forms of taxes by the three tiers of government on companies and businesses is especially discouraging, and add to the number of weakness that undermine the capital market as the engine room and pivot for economic growth and development in Nigeria.

3. Methodology of the Study

The objective of this study is to examine the impact of capital market efficiency on the economic growth and development in Nigeria. The operational methodology adopted is the multiple regression analysis with Ordinary Least

squares (OLS) econometric techniques and a time series secondary data from 1961 to 2004, which were obtained from various sources. The Ordinary Least Squares Theorem, supported by Koutsoyiannis (1985), Wannocott and Wannocott (1972) and Nyong (1993) as the Best Linear Unbiased Estimator (BLUE).

3.1 Model Specification

The efficiency of the capital market is determined by a number of factors, which include how financial assets are priced, such as interest rates and market price for risk, transactions in buying and selling of securities (liquidity), efficient information system, size of the stock market that is market capitalization, number of listed equities and the level of money supply in the economy. The interrelationship of these factors ensures the efficiency of the capital market to mobilize and allocate resources for economic growth.

The functional form on which our econometric model is based is given as;

$$Y = F(x_1, x_2, x_3, x_4, x_5) \quad (1)$$

Where Y is economic growth or GDP = dependent variables

x_1 to x_5 are independent variables or macro-economic factors

F represents the functional notation.

This can be specifically stated as;

$$ECG = F(GDS, ITR, MC, M_2, TTR) \quad (2)$$

Note that the proxy for economic growth (ECG) is GDP, hence it will be used for the study instead. The OLS linear regression equation based on the above functional relation is;

$$Y = a_0 + a_1x_1 + a_2x_2 + a_3x_3 + a_4x_4 + a_5x_5 + U \quad (3)$$

$$GDP = a_0 + a_1GDS + a_2ITR + a_3MC + a_4M_2 + a_5TTR + U \quad (4)$$

Where;

GDP = Gross Domestic Product (proxy for economic growth)

GDS = Government Development Stock

ITR = Interest Rate or determinant of share prices

MC = Market Capitalization

M_2 = Broad Money Supply

TTR = Total Market Transaction

a = Regression Constant

U = Stochastic Error Term

Transforming equation (4) to the natural logarithm we obtain;

$$\text{LogGDP} = \text{log}a_0 + a_1\text{logGDS} + a_2\text{ITR} + a_3\text{logMC} + a_4\text{log}M_2 + a_5\text{TTR} + U \quad (5)$$

The following are a priori expectations of the coefficient of the model: $a_1, a_2 < 0, a_3, a_5 > 0, a_4 > 0$.

4. Data Analysis and Discussion of Results

Table 4.1 shows the market capitalization of six emerging economies. That is Nigeria, Malaysia, Indonesia, Korea, Singapore and South Africa.

The market capitalization of Nigeria during the years under review had the highest increase of 2.7b in 1994 only to drop to 2.0b in 1995. Malaysia had enjoyed a steady increase from 1990 to 1993 only for the figure of its market capitalization to drop in 1994 (199.3b) and later increased in 1995 to 222.7b. Indonesia also had the same experience as it can be seen in the table. Its figure only decreased in 1991 (6.8b), apart from that, other years showed steady increase. The market capitalization of Korea was always oscillating during this period, yet it showed a reasonable difference between 1990 (110.6b), and 1995 (182.0b). Singapore equally maintained a meaningful increase in its market capitalization over the years as depicted in the table. South Africa figure only dropped in 1992 (103.56b) other years before and after 1992 showed increase in market capitalization. On the whole South Africa is the most viable in terms of market capitalization when compared to the other five emerging economies. Nigeria had the lowest market capitalization during the period under review when compared to the other countries.

In order to measure the size of the stock market it is necessary to use the number of listed companies. Therefore, table 2 shows the number of domestic companies listed or quoted in five different emerging stock markets.

It can be observed that all the five economies had progressive turnover, based on the increase in the number of quoted companies each year. A careful look at the table shows that Korea had the highest number of listed companies during the period under review. This is followed by Malaysia, while Singapore and Indonesia take their turn. In all Nigeria had always taken the bottom and the least when compared to other countries during the period. In 1990 (131), 1991 (142), 1992 (153), 1993 (174), 1994 (177) and in 1995 (181). Though the figures were increasing each year, but was less than the figures for the other four countries listed in the stock market. This means that, the number of listed companies in the capital market in Nigeria is quite few. The private sector should be encouraged to invest more on stock.

Table 4.3 shows the empirical data on which part of the analysis of this paper is based. As can be observed policy regimes is presented in column 1, government stock column 2, industrial loans column 3, equities and SSM column 4, and economic growth rate column 5. These are all disaggregated number of quoted securities and the total annual growth rate of the securities for the period from 1961 to 2004, which is exactly 33 years. The analysis showed that market reforms as contained in the policy regimes of the Indigenization Decree, 1972, the Structural Adjustment programme (SAP), 1986, the Second tier Securities Market (SSM) and the new industrial policy impacted positively on the growth of the capital market. Though, the rate of growth had been quite marginal. However, the policy reforms of Nigeria Investment Promotion Commission Act, 1995 and Foreign Exchange (Miscellaneous) Decree, 1995 which operate till 2004 did not have significant impact on the growth of the capital market as the period was characterized by sluggish or slow growth rate. Some years had negative growth rates. Such as in 1987 (-0.54), 1997 (-4.35), 2000 (-2.99) and 2002 (-4.98), and the average growth rate for quoted or listed securities for the period was 17.0.

4.1 Regression Result and Analysis

Table 4.4 shows the regression equation for capital market efficiency and economic growth, and the regression result. Observation shows that the result is consistent with economic apriori expectation. The co-efficient of the constant term is 11.9989, which is positive and statically significant. The coefficient of the log of money supply (LNMS) is negative. This implies that the Nigerian economy has low absorptive capacity and hence cannot absorb financial capital productively. The result confirms Ndebbio (2006) earlier assertion that Nigeria and some other under developed countries have low absorptive capacity. The results of the log of market capitalization (LNMC) and total transactions in the stock market (LNTTR) assume positive sign. This means that a large capital market size and with the simplicity in buying and selling of securities, has the potential to enhance growth.

Furthermore, the coefficient of log of government development stock (LNGDS) indicates negative. This implies fund raised by the government in capital market are sometimes spent on unproductive sector that does not enhance economic growth. Like the case where office holders in government swindle public fund for their private use. The determinant of share prices, interest rate (ITR) is positive from the result above. It invariables means that the Nigeria capital market depends on the prevailing situation. For instance if interest rate is high, the demand for shares will be low and speculative investors are likely to buy more of the shares, only to sell them when share prices are high as interest rate falls. The profit they make in future induces economic growth.

Based on the results of the independent variables as explained by the dependent variable; it can conclusively be said that market capitalization and interest rate have positive impact on growth while government stock retards growth. But the three variables are statistically significant. On the other hand total transactions and money supply variables are not statistically significant. The coefficient of multiple determinations (R^2) of 0.99 or 99 percent variation in the observed behaviour in the dependent variable is jointly explained by the independent variables. The remaining 0.01 or one percent is captured by the stochastic error term. Thus the high R^2 indicates that the model is a good fit. The F-statistics of 432.5 indicates that it is statistically significant. A cursory examination of the Durbin-Watson (DW=1.2) statistics result shows that the test is inconclusive, hence it can not be concluded with certainty that auto correlation exist or not.

5. Conclusion

This study reveals that there is a linkage between capital market efficiency and economic growth and development, vis-à-vis market capitalization, money supply, total transaction in stock, government development stock and interest rate. As it can be observed market capitalization, government development stock and interest rate are important capital market variables that are capable of influencing economic growth in Nigeria. This is because, a large capital market widen the prospect for growth and also government development stock if well invested and not misappropriated to un-lucrative sector that does not have the potentials of growth inducement. Further more, interest rate acts as a function of what happens in the capital market. Like-wise money supply and total transaction in stock are potential growth inducing macro-economic variables that are capable of enhancing economic growth in Nigeria. But the study clearly shows that Nigeria economy has low absorptive capacity, that is financial capital cannot be absorbed productively to stimulate economic growth and development. Moreover, the market is characterized by illiquidity and excessive government regulations.

6. Recommendations

- 1) The private sector should be encouraged to invest in capital market. This can be done through educating and enlightening the public, using knowledgeable people and experts or professionals that are competent in stock market dealings.
- 2) The illiquidity status of the capital market should be improved to make it more viable for investors to invest, and such overtures can contribute to economic growth. This can be achieved through complete reversal of the ownership structure.
- 3) The funds raised by government in the form of government securities in the capital market should be put into productive sectors of the economy that will necessitate to growth in all facets of the economy.

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Table 4.1. Market Capitalization 1990 – 1995 (in Billion Dollars)

Country	1990	1991	1992	1993	1994	1995
Nigeria	1.4	1.9	1.2	1.0	2.7	2.0
Malaysia	48.6	56.6	94.0	220.3	199.3	222.7
Indonesia	8.1	6.8	12.0	33.0	47.2	66.6
Korea	110.6	96.4	107.5	138.4	191.8	182.0
Singapore	34.3	47.6	48.8	132.7	134.5	148.0
South Africa	137.5	168.5	103.5	171.9	225.0	280.5

Sources: International Finance Corporation, 1996.

World economic and Finance Surveys “Global”

Table 4.2. Domestic companies listed in stock market

Country	1990	1991	1992	1993	1994	1995
Nigeria	131	142	153	174	177	181
Malaysia	282	321	369	410	478	529
Indonesia	125	141	155	174	216	238
Korea	669	686	688	693	699	721
Singapore	150	166	163	178	240	212

Source: International Finance Corporation, 1996.

Table 4.3. The Number of Quoted Securities in the Nigeria Capital Market and their Growth Rate (1961 – 2004)

Policy Regimes	Year	Government Stock	Industrial Loans	Equity Including (SSM)	Total	Growth Rate
Pre Indigenization (1961-1971)	1961	6	0	3	9	
	1965	17	5	6	28	211.1
	1971	32	6	14	52	85.7
Indigenization Decree (1972-1988)	1973	38	8	25	71	36.5
	1978	49	11	42	102	43.7
	1980	54	12	91	157	53.0
	1981	56	14	93	163	3.82
	1982	57	18	93	168	2.07
	1983	61	25	92	178	5.95
	1984	56	27	92	175	1.69
	1985	57	28	96	181	3.43
SAP Era (1986) SSM Era (1986)	1986	58	29	99	186	2.76
	1987	54	31	100	185	-0.54
	1988	51	35	102	188	1.62
The New Industrial Policy (1989-1994)	1989	47	40	111	198	5.32
	1990	43	43	131	217	9.6
	1991	40	57	142	239	10.14
	1992	36	62	153	251	5.02
	1993	37	71	174	272	8.37
	1994	35	64	177	276	1.47
Nigeria Investment Promotion Commission Act (1995). Foreign Exchange (Miscellaneous) Decree (1995)	1995	28	67	181	276	0.0
	1996	24	69	183	276	0.0
	1997	22	60	182	264	-4.35
	1998	19	59	186	264	0.0
	1999	15	58	195	268	1.52
	2000	12	53	195	260	-2.99
	2001	11	56	194	261	0.38
	2002	10	53	195	248	-4.98
	2003	9	56	200	265	6.9
	2004	12	58	207	277	4.5
	Average 1961-2004					17.0

Note: From 1961 – 1979, selected years were used, while from 1980 to 2004 all the years were included.

* SSM = Second Tier Securities Market

Sources: Nigerian Stock Exchange Fact Book, 2004.

Annual Reports and Accounts of various issues.

Table 4.4. Estimates of Capital Market Efficiency and Economic Growth (variables: LNGDP)

Variables	Estimated Co-efficient	T-Statistics
C	11.9989	10.32085
LN2	-0.182107	-1.577428
LNMC	0.514899	8.031631
LNGDS	-0.999489	-7.050558
LNTR	0.019242	0.342325
ITR	0.102956	6.944213
Adjusted R2	0.986288	
F-Statistics	4325742	
Durbin-Watson	1.203013	

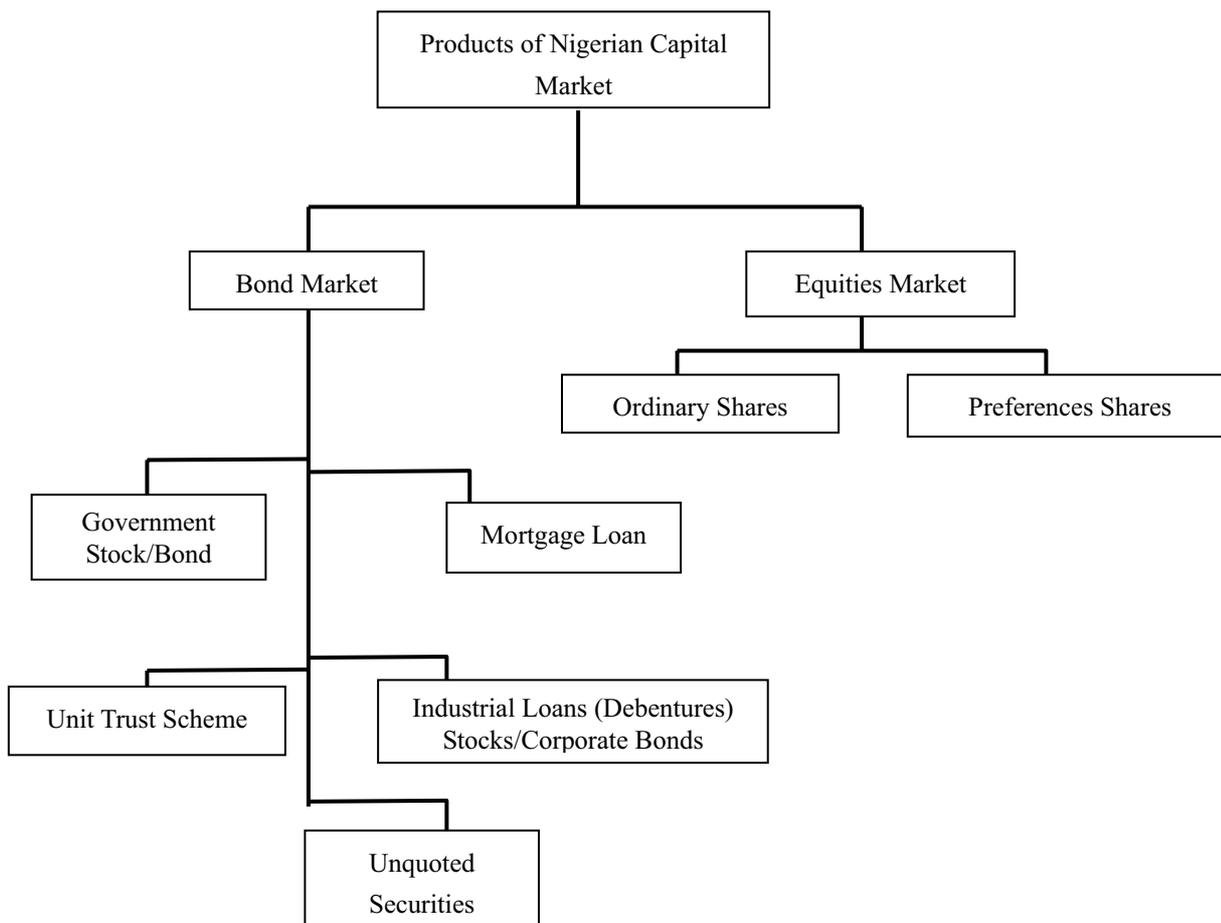


Figure 1. Instruments of the Nigerian Capital Market

Source: Nnanna, Englama and Odoko, 2004.



View on Work-family Linkage and Work-family Conflict Model

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Abstract

Separate pattern, mutual pattern and blending pattern are the relationship between work and family which can be explained by role theory, spillover theory, Compensation theory and Boundary theory. Work family conflict represents six dimension. Role conflict model, Gender differences model, work-family interface model give an explanation of causation and outcomes of work-family conflict.

Keywords: Work-family conflict, Work-family linkage, Model of work-family conflict

The issue of work and family interaction attracts a lot of attention in the academic field. More and more researchers devoted their energy into the exploration of the mystery of how people manage themselves to live in the work domain and family domain at the same time. Through the discovery of influence of work-family linkage, people may know to adjust themselves between the work life and family life. People can try to change their linkage patterns in order to reduce their work-family conflict.

1. Work-Family Linkage and Related Theory

Many researchers pay attention to work-family linkage from 1960s. Work and family become one of the important issues in domain of sociology, organize behavior, HR management.

There are four patterns in work-family linkage. Each one is related with its theory.

1.1 Separate spheres pattern -----roles theory

In sociology domain, sociologist think it is Industrial Revolution that lead work and family separate which roots from sex role difference. Role is defined as expected behaviors rooted from some social status. Sex role has psychology and social dimension. Moreno (1934) firstly studied role issue. Subsequently role theory grows as a compositive theory.

The separate spheres pattern sees family and work as distinctive systems, with the family as a domestic haven for women and work as a public arena for men (Zedeck 1992). Further, family and work should remain separate in order to function properly and the division of labor by sex should be maintained in order to avoid conflict. So work and family are separated, absolated from each other and not effected mutually (Lambert, 1990).

In the separate spheres pattern, role segmentation comes from different expectations on men and women. Women are expected to be good wife and mother. Men are expected to work for family. Such social expectation is not changed much as society development.

In China, traditional culture ranks women to family which gives a much bigger influence on women. Not coming singly but in pairs, a research named "what is the important thing in life" in America shows that 75% of married men give an answer of "my work" and women "my family" contrarily.

Based on the role theory, the Separate spheres pattern treats work and family as independent domains. Involvement in the two spheres does not therefore affect each other. But at present, women are not only housewife but also businesswoman, politician etc. So this pattern is rarely used by social scientists. Additionally, this pattern assumes actors can separate the two spheres in terms of time, physical location, emotions, attitudes, and behavior .But this segmentation is not absolutely. Work and family are in another mutual pattern.

1.2 Mutual pattern-spillover theory and Compensation theory

From the 1970s, some researchers came to study the mutual effects between work and family (Kahn, 1978).

Spillover theory recognizes that either system may have spillover effects on the other (Staines 1980). Excess work may have an effect on family (Belsky, Perry-Jenkins, Crouter, 1984a; Kelly, Voydanoff, 1985; Piotrkowski, 1979). Experiences gained from family domain may have effects on work (Belsky et al., 1985; Crouter, 1984b).

Simultaneous membership in the two systems often entails strain and overload for individuals, families, and work units. In general, the spillover effects pattern shifts attention from the effects of social institutions on each other to the effects of family members on each other, ignoring the social and political consequences of the context in which family and work are located. Spillover can be positive or negative.

Positive spillover refers to the fact that satisfaction and achievement in one domain may bring along satisfaction and achievement in another domain.

Negative spillover refers to the fact that difficulties and depression in one domain may bring along the same emotion in another domain.

Compensation theory is the one most often contrasted with spillover (Zedeck, 1992). It hypothesizes that there is an inverse relationship between work and family such that work and non-work experiences tend to be antithetical. It further proposes that individuals make differential investments of themselves in the two settings (Champoux, 1978), so that what is provided by one makes up for what is missing in the other (Evans and Bartolome, 1984). Deprivations experienced in work are made up or compensated for in nonwork activities.

The theory of compensation views workers as actively seeking greater satisfaction from their work or family life as a result of being dissatisfied with each other (Lambert, 1990). It provides a plausible explanation of why some workers become more involved in their work when experience family problems (Lambert, 1990). Therefore, when people experience compensation from work, it represents that they feel more job satisfaction than family satisfaction. When compensation happens, one would expect high involvement on one sphere to be accompanied by low involvement in the other. In other words, when people try to compensate for a lack of satisfaction at home, they become more involved in their work and their work involvement will increase.

Generally speaking, unlike the separate sphere pattern, which denies the connection between family and work, mutual pattern recognizes work and family are mutual effect. But both spillover and compensation theories view the work-family linkage statically. The developmental approaches proposed the longitudinal analysis of work-family linkages in the life span of a person or a couple. The developmental approach therefore adopted a psychological/developmental framework to explore the dynamics of the relationship between individual, family and career developments in the life span of person/couple. Furthermore mutual pattern regards individuals behaviors as passive ones not initiative.

1.3 Integration pattern-Boundary Theory

Work and family linkage presents integration trend in the times of information. Boundary between work and family are more illegible because of IT.

Boundary theory was first brought forward by Sue Campbell Clark (2000) who believes there is a boundary between work and family. Mental boundary, time boundary, physiological boundary are the three forms. Many individuals, then, are border-crossers who make daily transitions between the domains of work and home. Boundary theory is widely used in work and family issues such as work at home, flexible time, etc (Desrochers, Sargent, 2002). Individuals try to find a suitable boundary between work and family.

Boundary is characterized by permeability, flexibility and blending. Permeability refers to the bound one role penetrates to another. For example, operator working in call center is not allowed to private phone. Flexibility refers to boundary tractility between roles. For example, telecommuting female also play a mother role. When permeability and flexibility both exist in two or more roles, blending happens.

Based on boundary theory, though it is difficult to change some sides of work and family, individuals can change the boundary between two domains to some extent (Clark, 2000; Desrochers & Sargent, 2002). It is indicated that individuals are reactive in work and family domain.

2. Definition of Work Family Conflict

Definition of work family conflict was formally brought forward by Greenhaus in 1980s.

Work-family conflict, as defined by Kahn, is a form of interrole conflict in which the role pressure from the work and family domains are mutually incompatible in some respect. That is, participation in the work (family) role is made difficult by virtue of participation in the family (work) role (Higgins, Duxbury, Irving, 1992). Kopelman and Greenhaus defined interrole conflict as the extent to which a person experiences pressures within one role that are incompatible

with the pressures that arise within another role.

Greenhaus and Beutell (1985) identified three types of antecedents or source of the work-family conflict, which are time-based conflict, stress-based conflict, and behavioral-based conflict.

Time based conflict can take two forms: (1) time pressures associated with membership in one role may make it physically impossible to comply with expectations arising from another role; (2) pressures also may produce a preoccupation with one role even when one is physically attempting to meet the demands of another role.

Strain-based Conflict exists when strain in one role affects one's performance in another role. The roles are incompatible in the sense that the strain created by one makes it difficult to comply with the demands of another.

Behavior-based conflict happens when the behavioral styles that one exhibit at work (impersonality, logic, power, authority) may be incompatible with behaviors desired by their children within the family domain.

Insert Figure 1 here

Early research treated work-family conflict primarily as a unidimensional construct, recent research (Frone, Russell, & Cooper, 1992) suggests that it is reciprocal in nature, in that work can interfere with family (work-to-family conflict; WFC) and family can interfere with work (family-to-work conflict; FWC). WFC and FWC are generally considered distinct but related constructs. Research to date has primarily investigated how work interferes or conflicts with family.

Insert Table 1 here

3. Models of Work -Family Conflict

3.1 Role conflict model

Kopelman et al. (1983) provided a conflict model which proposed that work conflict and family conflict had a positive relationship with interrole conflict and these three kinds of conflict individually had a negative relationship with job and family satisfaction; at last the job and life satisfaction were related to life satisfaction positively.

Insert Figure 2 here

In this model, work-family conflict is based on role conflict. This model views work-family conflict statically which regards work and family separately.

3.2 Sex Difference model

Higgins, Duxbury and Irving (1992) extended the previous model and developed a more extensive and complete one. They added two more antecedent variables, which are role involvement and role expectation. As to the consequence variables, they also substituted quality of work and family life for job and family satisfaction in order to eliminate the weakness—the lack of a significant relationship between work-family conflict and job and family satisfaction.

Higgins, Duxbury and Irving (1992) paid attention to sex difference in work-family conflict. Afterward many researchers study the sex effects to conflict. Addition of role involvement and role expectation makes it possible to view work-family conflict in the sight of sociology. Social judgment for men usually comes from work role. If men involve much in family, it will differ from social expectation which will lead to work-family conflict in a high degree. Social judgment for women usually comes from family role. If women involve much in work, it will differ from social expectation which will lead to work-family conflict in a high degree.

But this model still views work-family conflict statically. The roles of men and women are in a change which leads to new role expectation and so contents of work-family conflict for men and women are in a change accordingly.

Insert Figure 3 here

3.3 Double Direction model

Frone (1992) gave a Double Direction model considering the direction of work-family conflict in which of stressors variable and depression outcomes are added.

Insert Figure 4 here

Based on this model, job stressors and FWC are positive to job distress; job involvement is negative to job distress. Family stressors and WFV are positive to family distress; family involvement is negative to family distress. Job and family distress are positive to depression.

This model gives an way to think work-family conflict in a double direction which is important for future study.

4. Future study

Work - family linkage and model of work-family conflict are mentioned in this article. A lot of future studies such as the outcomes of work-family conflict, policies to balance work and family are needed in the issues of work and family conflict.

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Table 1. Multidimensional Measure of Work-Family Conflict

		Direction to work-family conflict	
		WFC	FWC
Origin of work and family conflict	Time	Time based WFC	Time based FWC
	Strain	Strain based WFC	Strain based FWC
	Behavior	Behavior based WFC	Behavior based FWC

Source: Carlson,D.S.,K.M.Kacmar,L.J.Williams. (2000). Construction and Initial Validation of a Multidimensional Measure of Work-Family Conflict. *Journal of Vocational Behavior*, (56):249—276.

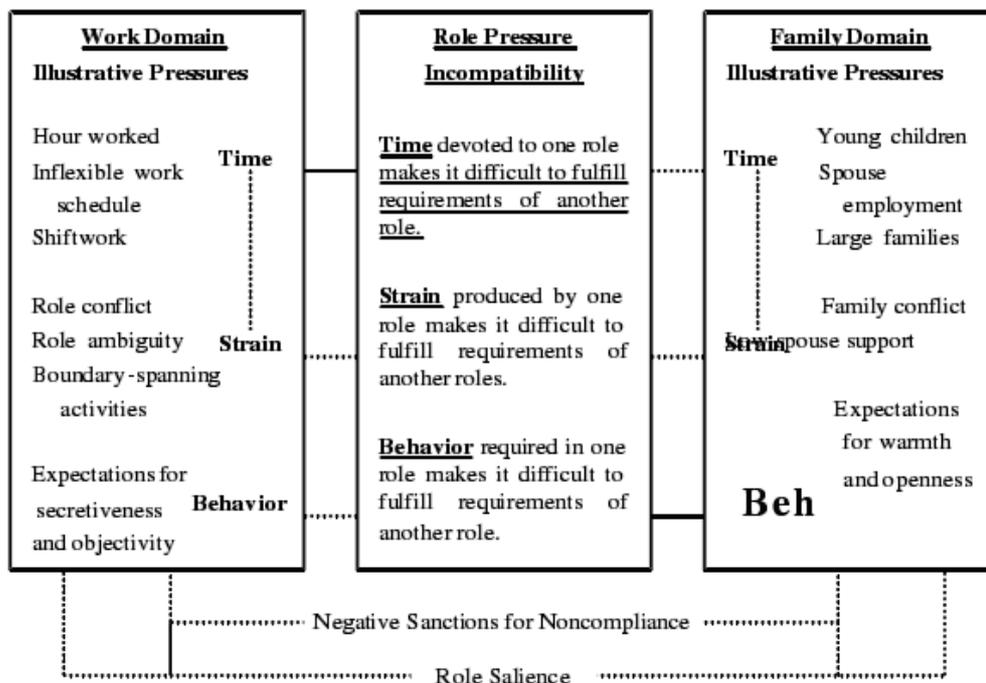


Figure 1 Work-family Role Pressure Incompatibility

Greenhaus & Beutell (1985)

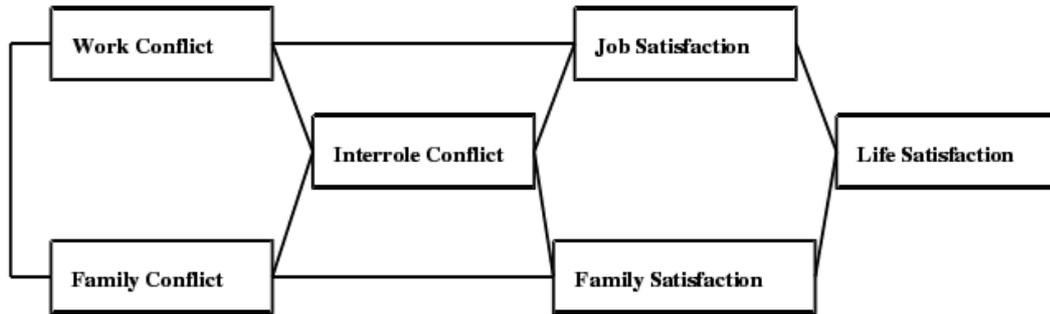


Figure2 Model of work-family conflict 1

Kopelman, R. E., Greenhaus, J. H., & Connolly, T. F. (1983)

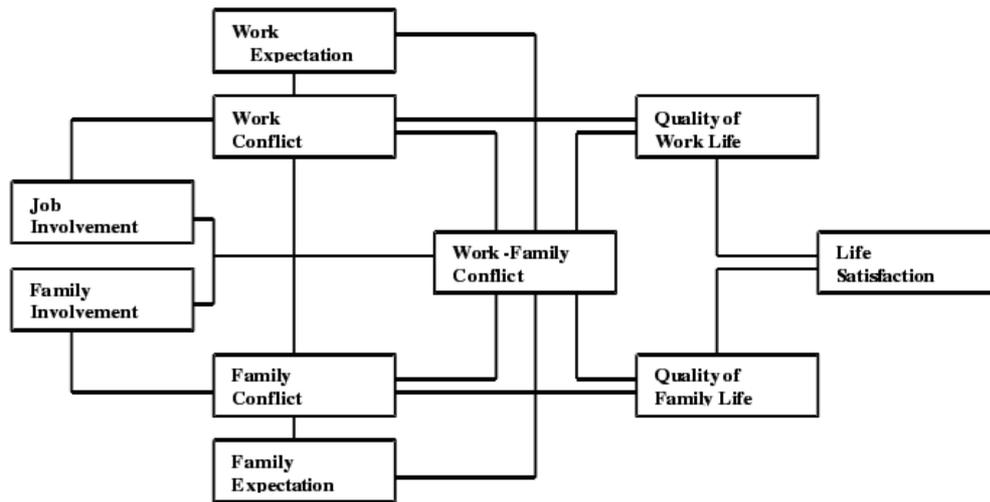


Figure 3 Model of work-family conflict 2

Higgins, C.A., & Duxbury, L.E. (1992)

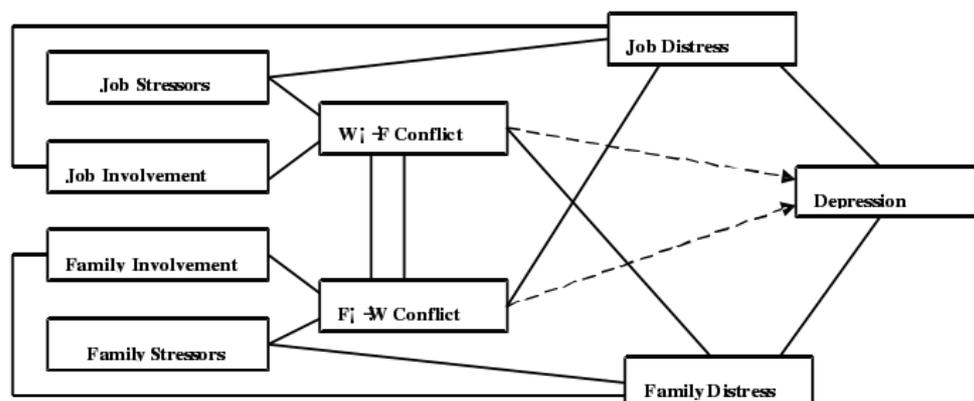


Figure 4 Model of Work-family Conflict 3

Frone, M. R., Russell & Cooper, M. L. (1992)



Analysis and Evaluation of Organizational Change Approaches

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Abstract

Organizational change is the trend for the further development and which been explained is the enduring quest of scholars in many disciplines. Prescriptive approach and emergent approach are two main types of models for organizational change. The 'Seven S Framework' from Peters and his colleague to show the interrelationships between different aspects of corporate strategy. Mintzberg developed his rational concept of an organisation as composed of five segments and uses his model flexibly to develop five different configurations of structure

Keywords: Organizational, Prescriptive, Emergent, Change

1. Introduction

"Explaining organizational change has been an enduring quest of scholars in many disciplines. Change and development process are central to such organizational phenomena as careers, group decision-making, organizational strategy formation, innovation, and interorganizational networks. Contemporary intellectual currents, exhibited in the rising interest in such topics as individual and organization life cycles, structuration theory and nonlinear systems thinking." (Poole, Van de Ven, Dooley, Holmes, 2000) In this article, a case study will be introduced to analyse and evaluated the theories of change management.

2. Two Approaches and a Framework

2.1 Prescriptive and Emergent Approaches

There are two main types of models for organisational change: prescriptive approach which works best where it is possible to move clearly from one state to another and emergent approach which is used in an unpredictable and unplanned fashion.

"Planned change (prescriptive approach) is a term first coined by Kurt Lewin to distinguish change that was consciously embarked upon and planned by an organisation, as averse to types of change that might come about by accident, by impulse or that might be forced on an organisation." (Marrow, 1969) Since planned change first mentioned by Kurt Lewin, lots of models have been developed. But they all take three-stage approach which was adapted by Edgar Schein (1964) as essential, which consists of unfreezing existing behaviour, changing behaviour, and refreezing new behaviour.

As the pioneer method of change management, weaknesses of prescriptive approach are obvious. First, if the environment is turbulent and the new destination state is unclear, company is impossible to move clearly from one state to another. Second, where major learning of new methods or substantial long-term investment is needed for the new situation, it may not even be clear when the new refrozen state has been reached. Third, it may be unrealistic if the politics within the organisation remain in flux, which means the agreement on the new refrozen state is possible. Fourth, this type of models relies on the imposition of change on the employees concerned. This may be totally inappropriate in some circumstance. (Lynch, 2005: P764)

"Emergent change consists of ongoing accommodations, adaptations, and alternations that produce fundamental change without a priori intention to do so. Emergent change occurs when people re-accomplish routines and when they deal with contingencies, breakdowns, and opportunities in everyday work." (Burnes, 1996: P291) Though there are no universal applicable rules for emergent change. But models of this type all tend to stress five features of organisations which including structures, cultures, organisational learning, managerial behaviour, and power and politics. (Burnes, 1996: P298) Especially, Pettigrew and Whipp's five factors theory provides a useful way of taking the facts from a strategic change situation and structuring them to highlight the important items. This model consists of five interrelated

factors as follow: environment assessment, leading change, linking strategic and operational change, human resources as assets and liabilities, and coherence of purpose in the management of change. (Lynch, 2005: P768)

Compared with prescriptive approach, critiques of emergent approach is also significantly. First, it seems less a coherent approach to change and more a label for a collection of approaches critical of planned change. Second, it is criticised for its over-emphasis on the political dimension of change. Third, it is limited in terms of both the types of organisational change to which it can be applied, and how it can be applied. (Burnes, 1996: P316) In other words, increased turbulence of the environment is assumed as a justification for the emergent strategies. Fourth, there is no guarantee that the organisational learning that has already taken place will be relevant to the crisis. (Lynch, 2005: P772)

2.2 Framework of Changing Management

In the implementation of an organisational change, only one model can not satisfy the real conditions. (Burnes, 1996: P321) said, according to manipulating the key variables, a framework can be constructed to allow different change situations to be matched to appropriate approaches to managing change. The Figure 1 below shows the framework for the change. (Burnes, 1996: P325)

Insert Figure 1 here.

3. 'Seven S Framework' and Peters' Analysis Model

3.1 Seven S Framework

The 'Seven S Framework' was first launched in 1970s by Peters and his colleague to show the interrelationships between different aspects of corporate strategy. (Lynch, 2005: P792) Currently, it is used to build cohesive strategy, and to examining the organisation and what contributes to the success of an organisation. As its name shows, the framework consists of three hard elements: strategy, structure, and system; and four soft elements: style, skill, staff, and superordinate goals. Without obvious starting point, those elements are equally important and interconnected, which means altering one element may well impact on others. The simple illustrations of seven elements are listed below: (Lynch, 2005: P792)

- Strategy – the route that the company has chosen to achieve competitive success.
- Structure – the organizational structure of the company.
- Systems – the procedures that make the organization work: everything from capital budgeting to customer handling.
- Style – the way the company conducts its business, epitomized especially by those at the top.
- Staff – the pool of people, who need to be developed, challenged and encouraged.
- Skills – not just the collection of skills that the organization has but the particular combinations that help it to excel. The resource-based view was a concept invented after the framework but may at least partially capture the special nature of skills.
- Super ordinate goals. This means goals 'of a higher order' and expresses the values, concepts and vision that senior management brings to the organization.

The framework is good at capturing the importance of the links between the various elements. However, the framework says little about the how and the why of interrelationships. The model is therefore poor at explaining the logic and the methodology in developing the links between the elements. Further more the model does not highlight or emphasize other areas that have subsequently been identified as being important for corporate strategy, such as: innovation, knowledge, customer-driven service, and quality. (Lynch, 2005: P793)

3.2 Peters' Analysis Model

The way in which 'successful' companies handle change has been a focus of interest for a number of researchers in recent years. According to Peters' further study after 'Seven S Framework', 'success' was defined as a mixture of organization's growth and financial return together with a reputation for continuous innovation in response to changing market situations. It was not meant to imply perfection. This model focused attention on the following characteristics of business organizations: structure, strategy, systems, management style, skills, people, and shared values. (Cole, 2004: P210)

- Operate on loose-tight principles. The best companies were both tightly controlled from the centre and yet, at the same time, encourage entrepreneurship.
- Incline towards taking action. There may be analysis, but there is always a bias towards practical and fast solutions where possible.
- Close to the customer. The best companies offered customers quality, reliability and service.

- Innovation autonomy. Responsibility is moved to individuals, who are encouraged to be as innovative as possible.
- Simplicity of organisational form. Organisation structures work better when they are clear and simple and have well-defined lines of authority and responsibility. Matrix management structures were more able to combine quickly into effective teams, task forces and project groups.
- The importance of the people resource, not just as an abstract concept but as individuals to be respected. The better companies not only made tough demands on employees but also treated them as individuals to be trained, developed and given new and interesting challenges.
- Clarity regarding the organisation's values and mission. In the best companies, many employees were clear both about the company's values and about why such values had been chosen. Better companies made a significant attempt to communicate debate and seek to inspire all within the organisation.
- Stick to the knitting. Organisations may diversify into other related areas but the companies that do best are the ones that concentrate on their core skills. Companies should not move into unrelated areas.
- Excellent companies have flexible organisation structures. This flexibility enables them to respond quickly to changes in the environment.
- Excellent companies have quite distinctive cultures. The company culture integrates the organisation's desire to meet its defined mission and objectives with two other important areas: serving customers and providing satisfying work for its employees.
- Successful strategy emerges through purposeful, but essentially unpredictable, evolution. Excellent companies are learning organisations that adapt their strategy as the environment changes through experimentation, challenge and permitting failure. (Lynch, 2005: P794)

4. Mintzberg's Model

Mintzberg (1983) developed his rational concept of an organisation as composed of five segments, summarised as follows: A 'strategic apex' comprising the chief executive and directors; then, proceeding down the operational line, a 'middle line' of operational management, followed by the 'operating core' of those directly involved in supplying the firm's goods and services; on either side of the operational line (traditionally called 'the line' in classical thinking) are (i) the 'techno-structure' comprising functional specialists and advisors, and (ii) the 'support staff'. Who provide corporate services (and who in classical terms would be seen as 'staff' employees). (Cole, 2004: P185)

Mintzberg uses his model flexibly to develop five different configurations of structure. His synthesis of the research on organizations produces a set of five clusters, or configurations, that provide the focal points for the study of organizations. These configurations reduce the separate influences of key organizational features into manageable concepts that can be used in the study of organizations. In Mintzberg's own words 'In each structural configuration, a different one of the coordinating mechanisms is dominant, a different part of the organization plays the most important role, and a different type of decentralization is used.' The five configurations are as follows (Cole, 2004: P186):

- Simple structure (basically no structure)
- Machine Bureaucracy (dominated by technical/specialist priorities)
- Professional Bureaucracy (dominated by skill of core staff)
- Divisionalised Form (dominated by products/outputs)
- Adhocracy (shared dominance of core staff and support services)

5. Case Study

5.1 Background

GK Printers Limited is a small, family-run printing business. It was established just after the Second World War by the present Managing Director's father. The company was originally a jobbing printers; which is to say they would print anything. 'No job too small' might well have been their motto, although in fact, the mainstay of their business was producing stationery, business cards and publicity brochures for local companies.

This work was moderately profitable and provided a reasonable living for the owners and their workforce, some 20 people. By the beginning of the 1980s, however, this situation was beginning to change. Firstly, the recession at this time has a strong negative effect on their traditional customer base, and orders began to fall off dramatically. Secondly, the advent of newer, computerised printing techniques, which GK had not adopted, meant that rivals could offer a quicker, cheaper and often better-quality service. Thirdly, the advent of a small printing bureaux (such as Prontaprint), often situated in prime city centre locations, and portraying an up-to-date image, further eroded GK's business. Lastly, it was clear that many of their customers were no longer going to a printer directly. Instead, in the image-conscious 1980s, they were putting their work out to graphic designers who, having finalised the design, would then subcontract out the

printing. In such a situation, there was no guarantee that the work from their traditional customers would eventually end up with them, it depended upon the preference of the particular graphic designers concerned. All these factors combined to threaten the financial viability of GK and, for the first time ever, the company lost money. The loss was only small (£20,000), but it came as a major shock to a company that has grown used to making a reasonable, if not spectacular, profit. The result of this was that the managing director and the company's Printing Manager, along with other members of the owning family, formed a 'crisis committee' to review the future of the business. (Burnes, 1996: P383)

From 1980 to mid-1990s, GK experienced four times individual changes. At first time, GK invited a business studies student from polytechnic to develop a strategy which includes replacing old printing machines with newer, upgrading the company's image, and developing customer base and start providing a graphic design capability. At second time, to improve customer service, manager team of GK agreed a number of key objectives on changing their systems and developed their computerised business system later on. At third time, during GK accelerating its pace of change which focuses on cutting the costs down and promoting business responding speed, another business studies student from polytechnic involved to change manager team members' attitudes and behaviours. At last time, GK launched online service after an accidental behaviour of one staff.

5.2 Analysis of the Four Changes

Obviously, GK's four changes introduced both planned and emergent approaches from the overall view. In here, with using Peters' analysis model, the effect of change management is analysed through different performances of GK before and after the changes.

- As a small company, GK is operated on loose-tight principle that the Managing Director reserves final power while other mid-managers receive lots of executive power.
- During the second changing, the implication of computerised business system was delayed nearly two year. The loss can be seen from the benefits brought from the application of computerised business system later on.
- In this case, the Managing Director of GK is very careful to the customer service. After each changing the improvements of customer service are significant.
- In the second changing, the introduction of computerised business system was purposed by the Printing Manager. Although the purpose was delayed, the Managing Director never ignored it, but kept discussing with the Printing Manager.
- With no more than 100 people and business focuses on a narrow area. GK keeps a simple divisionalised organisational form from 1980 to 1990s without any difficulties.
- In the first changing, the Managing Director had expected some resistance, and later gave the print workers training for the use of new equipment instead of simply fire them off.
- At the beginning of the third changing, the meeting among managers always ended acrimoniously and no decision was taken. Fortunately, after the effort of team-builder, managers stand together once again to drive the change. Everyone is clear with their missions.
- Two times diversification of business are operated very successfully by GK. Either after providing graphic design capability in the first change or providing online service in the fourth change, GK's income is greatly enlarged.
- From the first changing period, the Managing Director set a weekly coordinating meeting mechanism which calls the manager from each department together to negotiate.
- The factor that GK acts as a learning organisation is can be seen from the fourth changing when as soon as one staff successfully handing out an electronically requirement from customer, the company decide to issue online service.

Finally, following Mintzberg's configuration model, from organisation structure point of view, the impact the configuration of the GK has on the nature of its management can be concluded as follow. First, during the first change period, GK is a simple structure which's prime coordinating supervision is direct supervision, and key part of organization is strategic apex (the Managing Director). It is the Managing Director who invited outside expert to help to survive. Second, during the third change period, the coordinating mechanism of standardisation of outputs of divisionalised configuration form makes sticking in the mud, due to the bad attitude between managers. At last, in the last change period, a key staff lead to the thinking of providing online service appears in the Managing Director's mind.

6. Evaluation

From the case study, it can be see that currently company tends to implement their changing management through a comprehensive way. Only one approach can not meet the company's requirement. And learning ability of an organisation becomes the crucial point of continuous and incremental change strategy, which is the most effective way to keep an organisation's competition ability under the turbulent environment.

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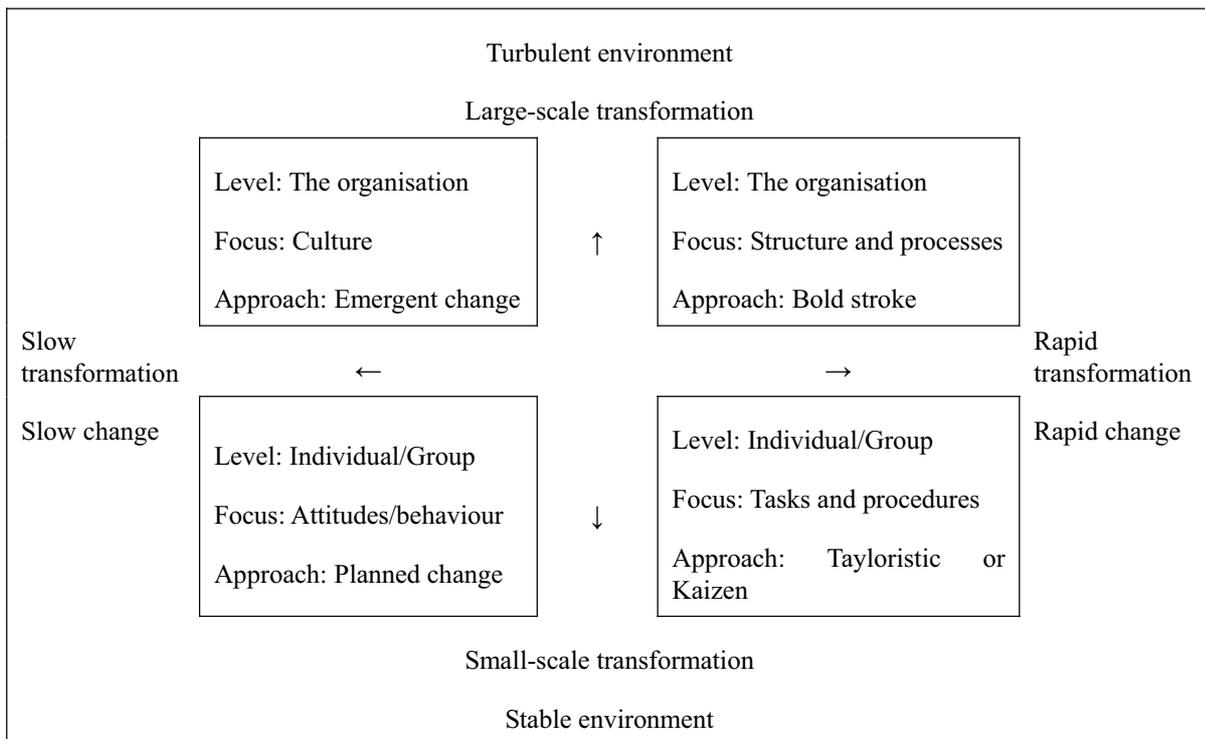


Figure 1.

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