

Does Internationalization of The Electronic Industries in The US Make Financing and Dividend Different?

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Abstract

This paper analyzes the debt ratio and the scale of cash dividend among the internationalized and domestic electronic industries in the US from 1999 to 2008 as the reference for financing strategies and decision. The evidence shows that the debt ratio and the payout cash dividend ratio in the internationalized electronic firms are lower than those in domestic electronic firms. Due to the uniqueness and the high profit ability of the internationalized electronic firms in the US, they have more earnings and inside capital so that the debt ratio is lower. Also, the internationalized electronic industries in the US have higher internationalization level with higher system risk level but their payout cash dividend ratio is less in that they tend to keep the cash against any incident.

Keywords: Electronic industry, Debt ratio, Payout cash dividend, Internationalization

1. Introduction

Among the worldwide top 10 of the semiconductor procurement brands in 2009, American business Whirlpool, Apple, and Dell were the top one, three, and five respectively. The dividend policy and business financing strategies, sales growth opportunities, and related interests also have close relationship. The higher internationalized level, the higher sales growth opportunities and product uniqueness. Therefore, the debt ratio and the cash dividend payout ratio are different between the internationalized and domestic electronic industries.

Several studies found evidence consistent with the negative perspective. The negative relationship between debt ratio and internationalization level (Burgman, 1996 ; Chen et al., 1997 ; Doukas and Pantzalis, 2003, and Lee and Kwok, 1988). The negative relationship between cash dividend and internationalization level (David et al., 1998 ; Fama and French, 2001). However, some researches found evidence consistent with the positive perspective. Singh and Nejadmalayeri (2004) found that positive relationship between debt ratio and internationalization level. Aggarwal (2010) and Rozeff (1982) thought that cash dividend and internationalization had positive correlation.

The purpose of this paper is in the same line as previous literature in investigating the earnings management and firm value using US data. Although their relationship has been the subject of considerable debate throughout the literature, particularly the West, little is known about electronic industries in that it's a collection of competitive local franchises. The present paper uses an empirical model to analyze the internationalization level impact on the financial decisions of US electric industry conduct and performance.

The rest of this study is organized into four sections. Section 2 reviews the results of previous empirical research and hypothesis development. Section 3 provides the methodology, the sample data and the variables we use in our empirical analysis. Section 4 discusses the empirical results. Section 5 concludes and presents a few implications emerging from the findings.

2. Literature and Hypothesis Development

2.1 Related research of internationalization

Robinson (1984) defined the internationalization as the allocation of a diversified firm's assets and sales among the

various industries within which it participates. Rugman and Hodgetts (1998) suggested that globalization had been defined in business schools as the production and distribution of products and services of a homogenous type and quality on a worldwide. Hitt (2006) pointed out that international diversification was a strategy through which a firm expands the sales of its goods or services across the borders of global regions and countries into different geographic locations or markets. Shaked (1986) and Kim and Lyn (1986) measured the internationalization by foreign sales account for at least 20 percent of total sales. Daniels and Bracker (1989) used foreign assets as percentage of total assets as a proxy of foreign production dependence. Burgman (1996) and Lee and Kwok (1988) defined the internationalization as the ratios of foreign tax divided by total tax greater than 10%. Chen, Cheng, He and Kim (1997) classified positive foreign pre-tax income of firms as multinationality. Geringer and Olsen (2000) and Ruigrok and Wagner (2003) employed the ratio of foreign subsidiary sales to total sales as the 'degree of internationalization' measure. Bartlett and Ghoshal (1989) suggested that the future export ratio in the early stages of international development was more suitable for measuring its level of internationalization.

2.2 Related research of financing decision

David et al. (1998) studied 880 international firms in the US from 1987 to 1996 and found out that their debt ratios were significant lower than domestic firms. The results were in consistence with the study results of Burgman (1996), Chen et al. (1997), Doukas and Pantzalis (2003), and Lee and Kwok (1988). But, Singh and Nejadmalayeri (2004) studied 90 French companies from 1996 to 1999 and found out that the debt ratio of a firm had positive relationship with internationalization level. Other scholars (Aggarwal, 1990; Deesomsak et al.2004; Rajan and Zingales 1995) thought that the different internalization level would make different recourse distribution and financial decisions. According to static trade off theory, the companies would adjust the debt ratio to the most suitable ratio in order to avoid too much total risk when facing the complicated international environment (Kale and Noe, 1990). It becomes the market main stream that the electronic industries in the US have high internationalization level with mature business and marketing network and that their products are unique and with high profitability. According to pecking order theory, the top choice is inside capital upon considering capital-raising. Outside capital is taken into consideration only when inside capital is not sufficient. Chang (1990) thought that due to the insufficient of proxy cost and investment, the business with high sales growth opportunities controlled the earnings by decreasing the liabilities. Therefore, we bring up hypothesis 1: the debt ratio of the international electronic firms in the US might be lower than that of the domestic.

2.3 Related research of dividend policy

Aggarwal (2010) and Rozeff (1982) thought that cash dividend and internationalization had positive correlation. Fama and French (2001) thought that the American businesses were in the mature phase with high profit ability, large scale, and high sales growth opportunities but the intention to payout cash dividend were decreasing. David et al. (1998) pointed out that the higher the internationalization level the bigger the systematic risk. High systematic industries had high uncertainty of their future cash flow. They might payout lower cash dividend. In addition, high internationalization would have high sales growth rate with more positive reward investment plans, the stockholders would not worry about over or insufficient investment and were willing to accept lower dividend (Barclay et al.1995; Porta et al.2000); therefore, we bring up hypothesis 2: the international electronic firms in the US might have less cash dividend than those in domestic electronic firms in the US.

3. Research Methodology

3.1 Model verification

Following the past research methodology, the regression model in this paper is used to test the relationship between the debt ratio and cash dividend of the international and domestic electronic firms in the US. The empirical models are shown as follow.

$$Debt_{it} = \alpha_0 + \alpha_1 INTA_{it} + \alpha_2 Div_{it} + \alpha_3 Risk_{it} + \alpha_4 ROA_{it} + \alpha_5 MTB_{it} + \alpha_6 MOG_{it} + \alpha_7 UNQ_{it} + \alpha_8 NDT_{it} + \alpha_9 Size_{it} + \alpha_{10} OL_{it} + \alpha_{11} FundDeft_{it} + \alpha_{12} Tax_{it} + \varepsilon_t \quad (1)$$

$$Div_{it} = b_0 + b_1 INTA_{it} + b_2 Leverage_{it} + b_3 Beta_{it} + b_4 ROA_{it} + b_5 GR_{it} + b_6 Size_{it} + b_7 FCF_{it} + \varepsilon_t \quad (2)$$

3.2 Measure variables

Debt ratio (Debt): was defined in this paper as "total liability at the end of the term divided by total asset at the end of the term" to measure the debt ratio (Ferri and Jone, 1979; Baskin, 1989; Varouj et al. 2006; Ozkan, 2001). Cash dividend payout ratio (Div): Agarwal (2010) used cash dividend divided by aggregate earning of the year to measure the payout ratio. Cash dividend of each share divided by EPS (Baskin, 1989; Doukas and Pantzails, 2003) was used for measurement in this paper. The proxy we employs to measure the internationalization level is the ratio of foreign sales to total sales. A dummy variable for internationalization level is used to differentiate internationalization

electronic firms from domestic electronic firms. Observations with the ratio of foreign sales to total sales more than 50% are classified as internationalized electronic firms ($INTA = 1$), otherwise, those with zero are classified as domestic electronic firms ($INTA = 0$).

In the control variables of the debt ratio, the operational risk (Risk): if the market competitiveness is more aggressive, the operational risk will be higher. In order to avoid the total risk getting too high, the debt ratio will be lowered. Therefore, the operational risk and the debt ratio were negative correlated (Aggarwal, 2010; Bradley et al. 1984; Chen and Steiner, 1999; Chuck et al. 2000). Standard deviation of the first difference in EBIT divided by the average total asset over 5-year period is used for measurement. Profit ability (ROA): Shyam-Sundars and Myers (1999) and Baskin (1989) thought that when a company was in need for financing capital, it would look for inside capital and then outside capital for the insufficient part. Therefore, profit ability and the debt ratio should be in negative correlation (Allen and Mizuno, 1989; Barton and Gordom, 1988; Barclay et al. 2006; Titman and Wessels, 1988). Income before extraordinary items divided by total asset was used for measurement. Growth opportunities (MTB): Nguyen and Faff (2002) thought that when a company had more sales growth opportunities, the insufficient investment problem would be smaller. Therefore, sales growth opportunities and debt ratio were negative correlated (Barclay et al. 2006; Goyal et al. 2002; Ozkan, 2001). Market value divided by book value of the firm at the end of fiscal year was used for measurement. Asset mortgage value (MOG): asset mortgage value and the debt ratio were positive correlated (Marsh, 1982; Titman and Wessels, 1988; Jensen et al. 1992; Hovakimian et al. 2001). Net property, plant and equipment divided by total asset was used for measurement. Uniqueness (UNQ): the higher the uniqueness of the products the more competitive and profit ability they would have. The inside capital is then increased and the need for outside financing is decreased. Therefore, the uniqueness of the products and the debt ratio were negative correlated (Bradley et al. 1984; Burgman, 1996; Lee and Kwok, 1988; Kim and Lyn, 1986; Titman and Wessels, 1988). Ratio of R&D and advertising expenses to total sales was used for measurement. Non-debt tax shield (NDT): the tax saving interest of the debt would be balanced by non-debt tax shield. Therefore, non-debt tax shield and the debt ratio were negative correlated (DeAngelo and Masulis, 1980; Doukas and Pantzails, 2003; Noronha, 1996; Ozkan, 2001). Ratio of depreciation and amortization expenses to total sales was used for measurement. Size: Graham, Lemmon and Wolf (2002) indicated that a larger size would have better credit ratings and less information asymmetry. It would be easier to seek for outside financing; therefore, the size and debt ratio were positive correlated (Aggarwal, 2010; Booth et al. 2001; Doukas and Pantzails, 2003). Natural log of total sales was used for measurement. Operation leverage (OL): Ferri and Jones (1979) thought that when the operation leverage was greater, the differences of the earnings of a business and the cash flow would be greater. The capability of paying fix interest would be decreased. Therefore, operation leverage and the debt ratio are negative correlated. Annual percent change in EBIT divided by the percent change in sales is used for measurement. The model of the fund deficit (FundDeft): the model of the fund deficit (Note 1.) of Shyam-Sundars and Myers (1999) indicated that besides the business reaching or close to its liability ability, the predicting model of the fund deficit of the financing order would fill up new debt issue. Therefore, the fund deficit and the debt ratio are positive correlated. Dividend payout ratio (Div): Jensen (1986) thought that the dividend policy had close relationship with the capital structure. The debt ratio and cash dividend payout ratio were negative correlated (Aggarwal, 2010; Chen and Steiner, 1999). Average tax rate (Tax): interest had the effect of debt tax shield; therefore tax rate and the debt ratio were positive correlated (Homaifar et al. 1994).

In the control variables of cash dividend, the systematic risk (Beta): Beta value is used to measure systematic risk. When a firm is in the environment of high risk, the uncertainty of future cash flow is high and tends to payout less cash dividend. Therefore, Beta value and cash dividend had negative relationship (Aggarwal, 2010; Rozeff, 1982). Profit ability: profit ability and cash dividend had positive relationship (Jensen et al. 1992; Aggarwal, 2010; Rozeff, 1982; Varouj et al. 2006; Fama and French, 2001). Sales growth rate (GR): the business that had higher sales growth rate would have more positive net current value investment plans. The shareholders wouldn't worry about the situation of over investment and could accept lower dividend (Aggarwal, 2010; Barclay et al. 1995; Porta et al. 2000; Varouj et al. 2006). Therefore, sales growth rate and cash dividend had negative relationship. Average past 5-year sales growth rate was used for measurement. Free cash flow (FCF): in order to lower proxy cost, the stockholders would ask for more dividend to reduce the free cash flow distributed by the administrators. Therefore, free cash flow and cash dividend had positive relationship (Easterbrook, 1984). (Operating profit before depreciation expenses-interest-cash dividend) / beginning asset is used for measurement. Size: Chang and Rhee (1990), Aggarwal (2010), Smith and Watts (1992) thought that larger size would have more inside capital and tended to payout more cash dividend; therefore, the size and cash dividend had positive relationship.

3.3 Sample

The data recourse of this paper is Compustat. The samples are the listing companies in the US from 1999 to 2008. According to their operating characteristic and special financial structures, the specimen selection criteria are

deleting insurance business, security business, public affairs and governmental business; 26,990 observation values and 5,800 of non-electronic industries are deleted. Due to the different founded time, 19,820 observations of 10-year non-complete specimen are deleted. The extreme values were handled in winsorize way that the first and the ninety-ninth percentiles of the observation were winsorized (Affarwal, 2010). Thus, 405 internationalized electronic firms and 965 domestic electronic firms in US are used in this paper.

4. Empirical result and analysis

4.1 Descriptive statistic

Table 1 is the descriptive statistic of the internationalized electronic industries in the US. The average values of the total asset of the internationalized electronic firms and the domestic electronic firms are 5170.7574 and 3477.8243 million US dollars, respectively. The internationalized electronic firms are 1.5 times greater than those in the domestic. The average debt ratio of the internationalized electronic industries is 0.378; lower than 0.404 of those in the domestic. The average cash dividend payout ratio in the internationalized electronic industries is 0.071; lower than 0.111 of those in domestic. The average of profit ability, growth opportunities, product uniqueness, business systematic risk, operational risk, operation leverage, sales growth rate and free cash flow, the internationalized electronic industries in the are higher than those in the domestic; and as for mortgage asset and non-debt tax shield, internationalized electronic industries have lower average than the domestic. The internationalized average values of the model of the fund deficit and average tax rate are smaller than those in the domestic.

4.2 The regression analysis of the internationalized electronic industries

Table 2 is the relationship of the debt ratio between the internationalized and domestic electronic industries. The debt ratio of the internationalized electronic industries is lower than those in the domestic and reach significant standard (coefficient is -0.030 and t-value is -3.177). The VIF values of each variables lower than the cut off value 10 shows that each variable has no doubt in co-linearity.

As control variables, mortgage fix asset, size and the model of fund deficit have significant positive relationship with the debt ratio. This shows that the electronic industries have more mortgaged assets, larger size, higher credit rating, and lower liability cost so that the businesses are willing to finance. The model of fund deficit shows significant positive relationship with the debt ratio and this means that the financing policy of the electronic industries tends to pecking order theory. Cash dividend, profit ability, uniqueness, operation leverage and tax rate have significant negative relationship with the debt ratio, which means if the electronic industries have more dividend payout, grater profit ability, higher operation leverage and higher tax rate, the financing intention of the businesses would be decreased. Tax rate, operating risk, and operation leverage are also irrelevant with the debt ratio. This result is the same as the capital structure analysis of internationalize firms studied by Aggarwal (2010). The growth opportunities, operating risk and non-debt tax shield are irrelevant with the debt ratio. This result is the same as the capital structure analysis of the US manufacturers studied by Titman and Wessels (1988).

Table 3 is the relationship of cash dividend between the internationalized and the domestic electronic industries. The VIF value of each variable is far below cut off value 10; no doubt of co-linearity. The table shows that the cash dividend payout by the internationalized electronic industries is less than those by the domestic with a significant standard (the coefficient is -0.034 and t-value is -3.317). The higher internationalized level, the higher business systematic risk and also the higher uncertainty of future cash flow, the less payout cash dividend (Aggarwal, 2010; Kale and Noe, 1990; Rozeff, 1982).

As control variables, firm size has significant positive relationship with the payout cash dividend. This shows that the electronic industries have larger size so that the businesses are willing to pay cash dividend (Aggarwal, 2010; Chang and Rhee, 1990; Jensen, Donald and Thoms, 1992). The leverage, systematic risk, sales grows rate and free cash flow have significant negative relationship with the payout cash dividend. This means that electronic industries would give out less cash dividend if the leverage is higher, systematic risk is higher and the free cash flow is more. The profit ability is irrelevant with the payout cash dividend.

5. Conclusion

The debt ratio and the scale of cash dividend between the international and the domestic electronic industries in US from 1999 to 2008 are compared as the reference for financing strategies and decision in this paper. The results show that the debt ratio and the cash dividend payout ratio of the international electronic industries are lower than those in the domestic. The internationalized electronic industries possibly have the uniqueness and high profit ability and they have more earnings and inside capital so that the debt ratio is lower. They also have higher internationalization level, better sales growth rate, higher business systematic risk and high uncertainty of the future cash flow than those in the domestic. Thus, their payout cash dividend is less. This shift in financing sources propels

the relationship we uncover in this study and sheds fresh light on existing finance decision making of internationalized electronic industries in US. Our study is limited to a specific country and time period and may not be generalisable to other contexts. Further studies should pursue these issues.

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Notes

Note1. $FundDef = DIV_t + X_t + DW_t + R_t - C_t$, Where, C_t = operating cash flow, after interest and taxes, DIV_t = dividend payments, X_t = capital expenditures, DW_t = net increase in working capital, R_t = current portion of long-term debt.

Table 1. Descriptive statistics of variables

Variables	Internationalized electronic firms				Domestic electronic firms			
	Min.	Max.	Average	S.D.	Min.	Max.	Average	S.D.
Debt	0.024	1.039	0.378	0.179	0.019	1.213	0.404	0.178
Div	0.000	0.783	0.071	0.121	0.000	2.102	0.111	0.199
Risk	-21.992	12.577	0.413	3.624	-26.591	10.086	0.243	3.000
ROA	-0.131	0.371	0.080	0.080	-0.483	0.437	0.076	0.085
MTB	-2.902	13.634	2.667	2.129	-1.927	13.634	2.632	2.385
MOG	0.015	0.675	0.190	0.127	0.006	0.695	0.200	0.121
UNQ	0.000	0.534	0.102	0.102	0.000	1.142	0.073	0.094
NDT	0.010	0.242	0.057	0.050	0.010	0.385	0.063	0.054
Size	4.050	10.846	7.348	1.454	2.455	11.021	6.988	1.456
OL	-0.162	0.543	0.109	0.111	-0.189	1.135	0.136	0.184
FundDeft	-1.241	0.752	0.018	0.199	-1.172	0.522	0.022	0.247
Beta	-0.888	6.583	1.941	1.156	-1.090	6.496	1.501	1.103
GR	-0.220	0.673	0.110	0.115	-0.339	0.910	0.102	0.177
FCF	-0.154	0.220	0.045	0.069	-0.254	0.258	0.037	0.076
Tax	-1.860	0.993	0.119	0.440	-1.860	2.995	0.230	0.457
Assets	119.455	67782	5170.7574	9457.986	29.847	58734	3477.8243	6898.871

Table 2. Regression analysis of the debt ratio

Variable	Debt ratio		
	β	T-value	VIF
Intercept	0.242	3.040***	
INTA	-0.030	-3.013***	1.089
Div	-0.149	-3.073***	1.175
Risk	-0.002	-1.607	1.019
ROA	-0.334	-11.171***	2.041
MTB	0.002	4.065	1.420
MOG	0.126	3.544***	1.611
UNQ	-0.713	-8.685***	2.272
NDT	-0.096	-7.596	2.742
Size	0.037	14.349***	1.206
OL	-0.132	-1.790***	1.244
FundDeft	0.039	-3.614**	1.052
Tax	-0.048	-1.473***	1.065
F-Vaule	47.165***	Adj.R ²	29.27%

*, **, ***Significant at the 10%, 5%, and 1% levels, respectively.

Table 3. Regression analysis of the cash dividend

Variable	Dividend		
	β	T-value	VIF
Intercept	0.049	2.0183**	
COUNT	-0.034	-3.3171***	1.062
Leverage	-0.095	-3.4526***	1.195
Beta	-0.030	-6.8732***	1.168
ROA	0.016	0.2351	1.679
SalesGR	-0.231	-7.9503***	1.077
Size	0.026	7.4716***	1.247
FreCFLS	-0.365	-4.8621***	1.504
F-Vaule	33.558***	Adj.R ²	14.27%

*, **, ***Significant at the 10%, 5%, and 1% levels, respectively.