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Dual Perspective of Inflation toward Market Development

Muhammad Shaukat Malik[1], Mustabsar Awais[1], Waqar-ul-hassan[1], Faisal Hayat[1], Shahbaz Hussain[2] & Aisha Khursheed[3]

[1] Institute of Banking & Finance, Bahauddin Zakriya University Multan, Pakistan

[2] Faculty of Management & Economics, Dalian University of Technology, China

[3] Department of Management Scinces, University of Education Lahore, Multan Campus, Pakistan

Correspondence: Waqar-ul-hassan, Institute of Banking & Finance, Bahauddin Zakriya University Multan, Pakistan. Tel: 92-345-612-3455. E-mail: Waqar-hassan@outlook.com

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Abstract

Stock markets are a reflector of trade and economic prosperity across the globe, it comprised of multiple physical and mental components. Economists featured investors and their handsome cash balances among fundamental elements of capital markets. Financial experts along with practitioners developed economic models to engage shareholders by portraying historical performance and future benefits of securities. The present study attempted to investigate the potential of inflation rate for causing market returns under the concept of Ross (1976) pricing theory. CPI is used as a proxy of inflation and KSE returns for measuring securities behaviors. Low inflationary (2000-2004) and High inflationary (2010-2014) durations as sample periods are privileged to empirically examine the twofold intensity of CPI toward index of Pakistani markets. Linear regression analysis declared inflation rate as a poor model for estimation of capital market returns, furthermore, CPI resulted in significant as well as the insignificant causal relationship with positive and negative intensity toward KSE returns.

Keywords: Healthy investors, capital markets, financial models, securities returns and CPI

1. Introduction

European industrial revolution provides basements for existence and advancements of Capital markets, which support international trade and mobilization of savings. Demands for financial liberalization escalated due to detachment of *Owner-Manager Principle*; entitled as initial determinant toward the establishment of Equity markets in industrial economies. Economists declared land, manpower and financial or capital resources as the major components of industrial production, capital is considered as leading factor among them. Financial markets are defined as critical to economic progress (Karimzadeh & Mostafa, 2006).

Stock markets play a vital role for centralization of financial resources in developed and developing economies. Capital markets allow stakeholders to generate a pool of shares by offering attractive short as well as long-term business plans or opportunities and facilitate individuals to expand the volume of their funds. The stock market is beneficial for overall business transactions and economic development because its operations promote employed persons and production units within the country. Securities markets are the representatives of financial health or soundness and economic sustainability. The better financial performance of equity markets also encourages foreign direct investments. Security exchange commission and economists perform their duties for execution of securities operations (Ologunde et al., 2007).

Frequent securities transactions evidenced appropriate performance of capital markets and economic activities. Risk factors associated with stocks inversely effects the impulse response of investors for holding securities. Economists developed theories and models for preventing market efficiency against risk obstacles. Markowitz, (1952) gave the concept of portfolio investment; making small baskets of funds for transacting stocks rather than spending all savings against a single one, in order to avoid risk considerations. Markowitz portfolio theory was the pioneer economic model for supporting individuals, corporate governors to advance their capital and business concerns respectively.

Sharpe, (1964) developed first pricing model on the conceptual framework of Markowitz portfolio theory for

valuation of securities, commonly specified as capital asset pricing model (CAPM). William Sharpe introduced Conviction of (β) systematic risk for predicting returns of stocks. Lintner, (1965) and Mossin, (1966) also substantiate the proposition of Sharpe model. According to this theory, venture capitalists require satisfaction against risk and time valuation of money for investment decisions. Although CAPM was a valuable approach for examining the worth of stocks, but economists affirmed it as a poor model due to concentrating particularly for systematic risk than other factors.

Stephen Ross in 1976 presented arbitrage theory, considered as a substitute to Sharpe (1964) model. He stated macroeconomic indicators, supportive for analysation of market returns. Arbitrage theory was projected, due to the ineffective performance of systematic risk (β). Macroeconomic forces are good representatives of economic operations and have dynamic relationships with securities returns. Corporate scholars and academicians applied APT across the globe, some of them found Ross theory inappropriate for estimation of returns. Failure of Arbitrage theory happened due to distinct economic conditions and absence of macroeconomic factors selection criterion.

CPI is a measure which imitates transformations in financial values of commodities and services, ordinary consumed by households. Economists generalized three basic pricing appraisals; Sensitive, Wholesale and Consumer as suitable components for symbolizing inflation collisions. Consumer basket comprised of individuals' basic necessities of life containing; food, shelter, clothing and transportation. Conventional changes of these price levels accord price index. The current study also encourages Consumer price index as a measurement of inflation rate for scaling market returns.

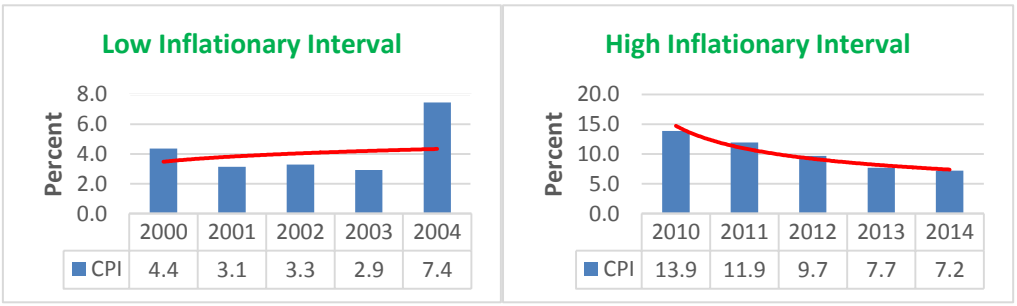


Figure 1. Inflation rate power trend lines with respect to time span

Pakistani security exchanges are considered as the world most potential equity markets due to the availability of resources and favorable growth situations across the region. Political and economic mortifications lead toward dramatic influences on stakeholders' financial health. Power trend lines regarding two-time intervals of Pakistani economy presents how the rate of inflation changed rapidly over the years.

1.1 Research Motivation

Numerous researches have been done in developed and developing economies to evaluate analytical interaction among market indices and inflation rate. Corporate researchers and academic scholars employed multiple statistical techniques to measure the behavior of inflation for determining asset returns. Most of the philosophers applied to time series data techniques to uncover this dynamic relationship and found twofold (positive & negative) capability of inflation toward returns. Ignorance of advanced data arranged and statistics like Panel analysis by earlier scholars and dual casual nature of inflation while reacting securities returns, act as a motive for conducting this study.

1.2 Study Objectives

The primary goal of the current study is to demonstrate possible explorative nature of inflation rate toward economic momentum. The present study also tests binary co-integration among listed companies of Karachi stock exchange (KSE) and leading macroeconomic variable named inflation rate by carrying Panel data econometrics.

2. Literature Review

Ouma and Muriu (2014) Figure out the performance of CPI (Inflation rate) for estimation of Kenya capital market returns during period 2003 to 2013 by taking a sample from NSE. The study employed Ordinary least square (OLS) regression and Augmented Dicky fuller test on time series data sets in order to make clear the capacity of inflation rate for measuring returns. Findings declared that all variables are stationary at I(0) and Consumer price

index assumed to be appropriate macroeconomic variable for gauging securities returns of Kenya equity markets during the studied period.

Academicians believed econometric methods are fundamental elements of applied researches, more reliable statistical techniques, and better will be the results. Keeping in mind the practical importance of methodology; Ullah et al. (2014) applied Bound testing approach and Error correction model ARDL technique for critically reviewing the harmony among KSE returns and rate of inflation, which was less frequently used by earlier scholars. Monthly time series data ranges from 2008 to 2012 and CPI as representative of inflation rate were taken for analysation of results. Regression outcomes indicated no statistical strength of inflation in favour to Karachi stock returns. Moreover, ARDL measured the inverse potential of CPI toward market index.

Engle in 1982 introduced Autoregressive conditional Heteroskedasticity (ARCH) model for controlling impacts of errors or residuals during regression process. Butt and Rehman (2010) preferred one of the Heteroskedasticity model named GARCH for examining the strength of CPI on Pakistani capital markets. Ten years data ranges from 1998 to 2008 of nine performing sectors of KSE were favored as a sample of the study. Results highlighted inflation rate as a positive and insignificant component for predicting KSE returns.

Zaheer and Rashid (2014) Sampled Pakistani capital market for considering the impact of CPI on listed companies of KSE. Annual data ranges from 2001-2011 was collected for evaluating the performance of inflation rate. Philip Perron, Augmented dicky fuller and Johnson co-integration statistics were performed for measuring statistical relation and level of stationary among variables. Unit root proved that variables are stationary at their first difference and there exist no statistical relation among Pakistani returns and consumer price index.

CPI has a significant positive relationship for estimation of KSE returns, Iqbal et al. (2013) proved these findings by taking monthly basis time intervals during period 2001-2010. The study applied ARDL approach as representative of error correction estimator for exploring dynamic association among rate of inflation and returns. Regression analysis presented a weak positive coefficient of 0.63 with a significance level of 5%. Price index measured 29% variations of dependent variable (KSE) returns. Study devised poor statistical potential of consumer prices for predicting stock values, overall inflation remained an ineffective member of research equation for analysation of returns. Researchers stated "rapid macroeconomic" changings, as a reason for discussed shortcomings.

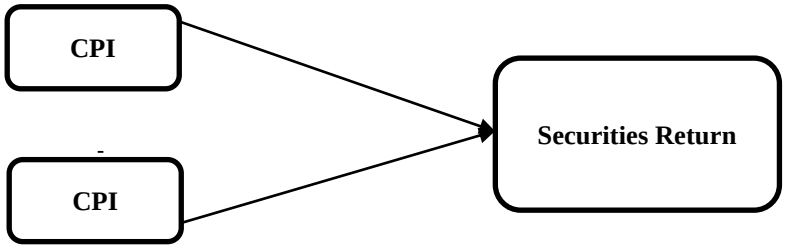
Rafay et al. (2014) Practiced Granger causality and ADF tests for describing relationships between KSE 100 index and inflation rate. Nineteen years data ranges from 1992-2010 as sample data. Study preferred State Bank of Pakistan sources for getting more accurate and reliable figures. Results declared lower inverse potency (-0.029) for considering capital market returns. There exist a high insignificant relation between CPI and index returns. Studied variables are stationary at first difference.

Haque and Sarwar (2012) Arranged Panel data of KSE by selecting data of 394 listed firm`s during the period 1998 to 2009. The study applied fixed effect model as a statistical tool for answering research questions. Consumer price index highlighted negative and significant potential for gauging equity market returns of Pakistan. Findings proposed inflation rate as flexible macroeconomic variables for measuring KSE returns. Negative correlation among returns and CPI indicated that an increase in a unit of inflation rate will decline stock returns. Hausman test was used to select fixed effect model as an econometric tool for the present study comparatively to Random effect model.

Arbitrage theory is an effective pricing structure for examining index returns of Pakistani capital markets. Sohail and Zakir (2011) proved these precise assumptions about pricing theory by taking Karachi exchange index and inflation rate as reflectors of market efficiency. They used KPSS, Augmented dicky fuller and Phillips Perron techniques for evaluating basic properties of arranged data. Decomposition of variance, co-integration, and error estimation theories was preferred in order to uncover the strength of consumer prices toward market returns estimations. Results highlighted that variables showed the level of stationary at their first differences and a meaningful positive correlation among consumer prices and returns of equity market (KSE).

Sarwar et al. (2014) Declared Consumer prices (Inflation rate) among statistical significant and positive economic indicator for generalizing capital market returns of Karachi exchange (KSE). Time intervals data for the period ranges from 1997 to 2013 was collected from Pakistan Bears of statistics to reach empirical findings. Capital gains of 193 KSE listed firms were preferred for representing returns of securities. Correlation and Simple linear regression techniques were adopted to review analytical relationships between studied variables. Pearson test reported high significant (1%) relationship in between CPI and securities returns. The rate of inflation succeeded to explain 70% variation of the dependent variable.

2.1 Theoratical Framework



Above given positive and negative signs, indicating dual or twofold participative nature of Consumer prices toward Market development (Securities returns). Rafay et al. (2014); Haroon and Jabeen (2013) also preferred stock returns as a proxy market development. Previous studies on this subject stated that low and high inflation rates are beneficial as well as harmfull for economic growth. Dual nature of inflation rates are the basic pillars for designing and construction of present study theoretical framework and hypothesis.

2.2 Regression Models

$$Stock\ \ Returns_{\ Low\ Inflationary\ Period} = \beta 0+\beta 1(CPI)+\mu_{it} \quad (1)$$

$$Stock\ \ Returns_{\ High\ Inflationary\ Period} = \beta 0-\beta 1(CPI)+\mu_{it} \quad (2)$$

2.3 Hypothesis Development

H1: Inflation rate and stock returns are positively related to each other.

H2: There exist inverse association among securities returns and inflation.

3. Research Design

3.1 Population and Sample Selection

Listed companies of Karachi stock exchange is considered as a population of the study. Food and Personal Care Products sector is selected as firms' sample. Data for the period (2000-2004) low inflationary period and (2010-2014) high inflationary period are favored to be the sample period. Two periods of different inflationary status have been selected to estimate the hypothesized relationships.

3.2 Variables Description

Study preferred CPI and securities returns as representatives of the inflation rate and economic development. Data sets are gauged on annual basis. Consumer prices and share prices have been gathered from World bank data bank source and KSE data portal respectively.

3.3 Econometric Techniques

Panel data sets are structured for determining the intensity of inflation in favor of capital market returns. Linear regression analysis has been performed using STATA (Statistical Package) to answer research questions for evaluation of hypothesized associations.

4. Results and Discussion

Low inflationary (2000-2004) period illustrated no meaningful relationship among Consumer price index and KSE returns. Insignificant nature of CPI for causing returns confirmed with available t and p statistics of econometric analysis. Linear regression revealed t value less than 1.96 furthermore p numeric larger to 0.05 suggesting no statistical relationship between KSE returns and inflation rate during the low inflationary period. Present findings support earlier works; Ullah et al. (2014); Zaheer and Rashid (2014); Rafay et al. (2014) and reject the attempts of; Sarwar et al. (2014); Iqbal et al. (2013); Sohail and Zakir (2011).

Table 1. Regression equations robustness findings

Model	Obs.	Prob. > F	R-Squared	Adj. R-Squared	Root MSE
1	55	0.5873	0.0056	-0.0132	0.54767
2	55	0.0508	0.0701	0.0525	0.92499

Model 2 indicated significant behaviour of inflation rate for determining equity returns during period 2010 to 2014 at 1% significance level, which promote previous researches; Zaighum (2014); Shubita et al. (2010) and neglect the findings; Butt and Rehman (2010); Hasan and Nasir (2008); Imdadullah and Hayatabad (2012). A high inflationary period play supportive role for establishing significant harmony among returns and consumer price index. Both regression models highlighted poor robustness; 0.56% and 7.01% accordingly for demonstrating dependent variable. F values exceeded fitness limit of 0.05 and also structured limited capabilities of regression equations. Haroon and Jabeen (2013) empirically proved that CPI has only 1.28% ability for explaining variations of KSE returns.

Table 2. Estimations against hypothesised relationships

Model	Variable	Coefficient	Relationship	t-value	P-value
1	CPI	2.411275	Positive	0.55	0.587
2	CPI	9.851348	Negative	2	0.051

Regression coefficients expressed amount of changes independent variable due to the aggregate expansion of independent variables. Low inflationary (2000-2004) period computed the weaker positive coefficient of 2.41, stating that an increase in one unit of Consumer price index will grow 2.41 participative units of KSE returns. These outcomes reflect the results of; Robin (2014); Ouma and Muriu (2014); Iqbal et al. (2013) and refute the empirical studies; Abbas et al. (2014); Haque and Sarwar (2012). High inflationary (2010-2014) period nominated average inverse, -9.85 potencies of CPI toward the calculation of market returns. Results encourage the findings; Rahim (2013); Nishat and Shaheen (2004); Akbar et al. (2012) and contradicts including; Negate Hasan and Nasir (2008); Sohail and Zakir (2011); Sarwar et al. (2014).

5. Conclusion

Findings of the study demonstrated the incompetent performance of Panel regression models for considering (Fast moving consumer goods) FMCG`s returns of KSE during the studied period. However the twofold intensity of inflation rate for participating economic development is proved through regression analysis, which also confirmed acceptance of study hypothesis. Postive and negative contributions of CPI against market efficiency (securities returns) are related to levels of inflation. Balanced inflation trigger economic movements and securities return comparatively too high inflationary period. Results revealed the statistically insignificant behavior of inflation for determining returns for low inflationary (2000-2004) period and significant during high inflationary (2010-2014) period. Hypothesis 1 and 2 both are accepted, the present study is helpful for investors and financial analysists to make healthy business decisions and controlling rates of inflation within the economy.

6. Recommendations

Adopting other proxies of inflation rate additionally to available macroeconomic variables with large sample size and advanced econometric techniques should result in more accurate estimation against stocks returns. Examining the relationship between market index returns and macroeconomics by arranging comparative studies like democratic versus dictator period, and developed/developing economies will provide deep insights for securities valuation.

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