

# EFFECTS OF INTEREST RATES ON STOCK MARKET CAPITALIZATION

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## ABSTRACT

Is stock market capitalization susceptible to changes in interest rates or not? This paper tends to examine and explain this relationship in the context of Pakistan. When cost of debt financing (i.e. interest rate) increases, profits of geared companies are likely to go down, which might cause lower earnings and dividends per share. Deflated earnings and dividends might then lead to lowering of expectations about future benefits from the shares of such companies and would negatively effect share prices, thus lowering market capitalization of stock exchange. This paper examines the relationship between interest rate changes and stock market capitalization. Single-variate regression models are used to analyze the response of weekly market capitalization of Karachi Stock Exchange (KSE) to changes in Repo Rate and KIBOR.

Contrary to most of the previous empirical studies, our findings indicate that whenever there has been a general rise in the interests rates, namely, State Bank's Repo rate and KIBOR, market capitalization of KSE surprisingly though, increased. The findings of this research, on the one hand, do not stand supportive to most of the previous researches on the same topic, however, that could be because those researches were mostly carried out in developed capital markets. But, the research does support the notion that in developing countries banks and non-banking financial institutions make huge investments in the stock markets. As increase in interest rates increases the liquidity of banks and non-banking financial institutions and consequently when more funds are invested in the stock market that increases market capitalization.

## 1. INTRODUCTION

Like other parts of the economy, stock markets' investors also stay concerned about the prevailing and anticipated interest rates. Usually the interest rate that applies to investors is the State bank's (SBP) discount rate. This is the cost that banks are charged for borrowing money from State bank of Pakistan. SBP charges this rate in order to control inflation and achieve certain economic objectives. Basically, by increasing the discount rate, central banks attempt to lower the supply of money by making it more expensive to obtain (Singh et al., 1982). However, when the State bank of Pakistan increases the discount rate, it does not have an immediate impact on the stock market. Instead, on preliminary basis, the increased discount rate has a single direct affect, i.e. it becomes more expensive for banks to borrow money from the Central bank. As a result inter bank transactions of borrowing and lending becomes costly because when there is an increase in the money market rates, banks then also follow suit. However, other businesses are also affected in a direct manner, but in the second round. Companies have to borrow from banks and financial institutions for their capital expenditures. When the banks make borrowing more expensive, companies might not borrow as much as they do when interest rates are low, and, even if they would borrow, that will make them pay higher interest.

Lesser capital expenditure stimulated from higher interest cost can slow down the growth of a company, resulting in decrease profits. When profits of companies fall they consequently might declare fewer dividends to the shareholders. Lower earnings and dividends per share would convey a bad signal about the company and that would adversely change the price-earning ratio. Eventually stock markets start showing lower average indices. Apart from a few, for many investors stock prices are not a desirable situation. Investors wish to see their invested money increase in value. Such gains come from shares' price appreciation which is the outcome of high price earning ratio and high dividend per share. With a lower expectation about the growth and future cash flows of a company, investors will not find it desirable to invest any more in the shares of the company.

Figure 1.0 illustrates that whenever SBP increases the Repo rate, other interest rates also respond likewise. This results to higher borrowing cost for businesses, while increasing the liquidity of commercial banks and other financial institutions. Deficit public limited companies would rather offer new shares as a cheaper alternative for raising capital, and banks and other lending-financial institutions carrying idle cash would also opt for investing that surplus in the stock market, which, together, in turn increases the stock market capitalization.

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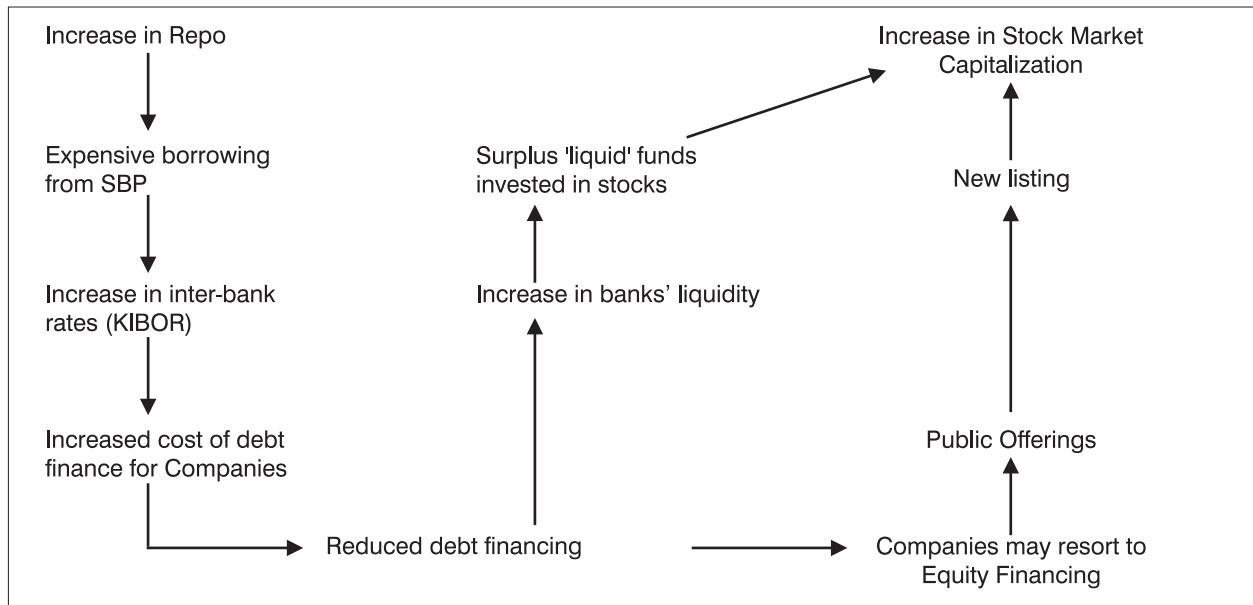


Fig: 1.0

Investing in shares can be viewed as too risky compared to other investments. Whenever the State Bank increases the discount rate, newly offered government securities such as treasury bills or Pakistan investment bonds, which are viewed as the safest investment, will usually experience a corresponding increase in interest rates. In other words, the risk free rate of return goes up, making these investments more desirable. In contrast, people investing in stocks of shares demand a premium for accepting the risk involved in such investments - a premium above the risk free rate. In general, as the risk free rate goes up, the return required for investing in stocks and other risky (relative) assets also increases.

The objectives of this study are to provide an overview that how increases in interest rate affect stock market capitalization. This will help investors, companies and business organization regarding their investments and acquiring funds. Our main objectives are to:

- To critically examine the relationship between interest rate and stock market.
- To analyze the effect of interest rate changes on stock market capitalization.

To achieve these objectives we have taken Karachi Stock Market Capitalization and KIBOR and State Bank of Pakistan Repo rate.

## 2. LITERATURE REVIEW

The relation between interest rate movements and stock market capitalization has been the focus of considerable amount of research in recent years. Usually there is an indirect link between interest rate changes and stock market, and whenever there are any increase

in interest rates it affect stock market significantly. Changes in interest rates mainly occur due to the central banks monetary policy. According to Lobo (2005), interest rate changes can impact equity prices through two channels, i.e. by affecting the rate at which the firm's expected future cash flows will be capitalized, and by altering expectations about future cash flows. Further, one would expect that if both capitalization rates and expectations about future cash flows are impacted by interest rates, these effects would work in the same direction. In other words, an increase in interest rates will cause stock prices to decline and a decline in interest rates will cause stock prices to rise.

Another perspective for consideration is that increase in interest rates results in expensive borrowing for companies. When the cost of debt financing increases the profits of the geared companies are negatively affected which might cause lower dividends per share. This would lead to lowering the price earning ratio. And would signal that the company has low external financing sources to expand and diversify its operations. Bolton and Weigand (1998) claimed that the interaction of changes in earning and interest rates throughout the economic cycle cause changes in the level of stock prices thus effecting market capitalization as well. This implies that monitoring and forecasting these factors can help explain and possibly predict stock price behavior over time. Singh and Talwar (1982), investigations into business cycles have found money supply to be a lead variable to stock prices. However, some would argue that the stock market, being efficient, anticipates money supply changes and therefore, stock prices are lead variables to money supply changes.

Increase in interest rates increases the liquidity of the banks and financial institutions and likewise when more funds are invested in the stock market that increases the stock market capitalization. A study conducted by Ologunde, Elumilade, and Asaolu (2006) examined the relationship between stock market capitalization and interest rates. According to them, interest rates exerts positive influence on stock market capitalization. In developing countries banks and financial institutions make huge investments in the stock market. They not only provide loanable funds to corporate businesses but also make investments in the stock market. Jefferis (1995) said that in developing countries capital markets are dominated by bank-based finance. This is not surprising, according to him as Mayer (1989) argues that banks involvement at the early stages of economic development is not necessarily a consequence of market failures in respect of other financial instruments but rather a reflection of the limited availability of managerial resources and the rational concentration of those resources in financial institutions (banks) which can play a major role in the allocation of finance between firms.

### 3. HYPOTHESES

On the basis of the relationships among the variables as discussed above, whereby conflicting results confound the whole scenario regarding the given situation, we come up with the following hypotheses:

- A. Interest rate has no effect on the capitalization of stock market.
- B. Provided the situation whereby Central bank do not interfere the interest rates in stock market, relationship between stock market capitalization and interest rate is negative
- C. With the increase in interest rate, stock market capitalization increases.

### 4. METHODOLOGY, DATA AND MODEL

This study is attempts to know how interest rate's changes have an effect on stock market capitalization. To analyze this we have taken variables viz: stock market capitalization ,KIBOR (Karachi inter bank offered rate) and State Bank of Pakistan Repo rate, for the period January 2004 to June 2006 on weekly basis. The stock market capitalization was regressed on KIBOR and SBP Repo rate separately. The data obtained were fitted to the equation by linear regression. The relationship between dependent and independent variable were determined.

We have used two models for each independent variable to avoid any biasness in the results that could have come up because of the high colinearity between the two interest rates (refer to Table 3). Model 1 is used for stock market capitalization and KIBOR and model 2 has been used for market capitalization and SBP Repo rate.

The analysis of model 1 indicates that how market capitalization will change if KIBOR changes by 1%. The intercept turns out to be positively significant, indicating that stock market capitalization is not wholly dependant on KIBOR. But, the coefficient for KIBOR is also found positively significant; signaling that when there is an increase in the KIBOR there is a huge amount of increase in the stock market capitalization. The R Square result is almost 71% which shows that a huge amount of variation in the stock market occurs due to fluctuation in KIBOR. Besides, other things like political and economic conditions, GDP, taxes, an out break of war, revolution or change in the government, unforeseen competition, rumours, strikes, amalgamations and the like also fluctuate stock market capitalization. However, when KIBOR increases, it increases the deposits of the banks and financial institutions. Increase in deposits leads to in-

MODEL 1	MODEL 2
<b>Variables</b>	<b>Variables</b>
<i>Stock market capitalization (Dependent variable)</i>	<i>Stock market capitalization (Dependent variable)</i>
<i>KIBOR (Independent variable)</i>	<i>SBP Repo rate (Independent variable)</i>
$Y = a + bx + e$	$Y = a + bx + e$
$Y = a + \beta ki + e$	$Y = a + \beta R + e$
Where:	Where:
Y= market capitalization	Y = market capitalization
a = intercept	a= intercept
$\beta$ = coefficient	$\beta$ = coefficient
ki = KIBOR	R= SBP Repo rate
e = error	e= error

Analysis and Interpretation of Model 1

**Table 1: Market Capitalization Vs KIBOR**

Variable	Co-efficient	t Stat	Significance / Non Significance	R Square
Intercept	0.943	13.6	Significant	71%
KIBOR	79.99	17.45	Significant	

**Table 2: Market Capitalization Vs Sbp Repo Rate**

Variable	Co-efficient	t Stat	Significance / Non Significance	R Square
Intercept	-3519.119	-8.80	Significant	61%
SBP Repo rate	3497656.955	13.93	Significant	

**Table 3: Kibor Vs. Sbp Repo Rate**

	SBP Repo Rate	KIBOR
SBP Repo Rate	1	0.892766
KIBOR	0.892766	1

crease the liquidity of the banks and financial institutions. The banks have to invest these funds somewhere and generate revenues from it. Now to utilize these funds they invest it in the stock market as a best alternative. When the huge amounts are invested in the stock market, there is an increase in the stock market capitalization and stock market becomes an attractive place for investments.

The analysis of model 2 indicates that if there is no SBP Repo rate the market capitalization will decline. It is because of the fact that in the absence of Repo rate banks and financial institutions will be unable to take loan from State Bank of Pakistan resulting in a lower liquidity level. Low liquidity will not permit the banks and financial institutions to make investment in the stock market, hence the capitalization of the stock market will decline. This phenomenon could be well experienced in emerging economies where banks and other financial institutions are the major stock market investors. Now if Repo rate exists and increases by 1%, there will be a huge increase in the stock market capitalization because the financial institutions and banks will be having more funds and liquidity. This relationship is evident from the statistically significant and positive coefficient obtained from our model 2. The R Square result explains almost 61% variation in stock market capitalization.

When demand for shares of the different companies listed in the stock market increases, the prices of these shares goes up. When the prices increase some investors offer shares to the buyers to take advantage of higher prices. Buyers purchase these shares to take advantage of further increase. So the trading volume increases. It attract more banks, financial institutions and other businesses to invest in the stock market, which leads to increase the stock market capitalization.

## 5. LIMITATIONS

Because of the unavailability of KIBOR for a longer period of time we could not perform the empirical study on a longer period and as such we cannot assert that our findings about the relationship between the interest base-rate and stock market capitalization will hold true for a longer period of time also.

## 6. CONCLUSION

Interest rate has a wide and varied impact upon the economy. When it is raised, the general effect is to lessen the amount of money in circulation, which works to keep inflation low. And it also makes borrowing money more expensive, which affects how consumers and businesses spend their money; increases expenses for companies, lowering earnings somewhat for those with debt to pay; and finally, as mostly found by previous studies, it makes stock markets a slightly less attractive place to invest. However, it should also be reckoned that each of these above factors and consequences are interrelated. Those described are very broad interactions, which can play out in innumerable ways.

Nevertheless it should be appreciated that interest rates are not the only determinants of stock market capitalization and there are many considerations that go into stock market capitalization and the general trend of the market. An increased interest rate is just one of them. Others, especially in a developing economy like Pakistan can be foreign direct investments (FDIs), government's special industrial development policies and packages, political stability and security, e.t.c.

While analyzing the impact of changes in the base rates of interest on market capitalization of stock market, our empirical evidence supports that there is a positive relation between base-rate and market capitalization. As KIBOR increases, it leads to increase the liquidity of lending - financial institutions. Banks and non-banking financial institutions get more deposits from savers and to generate return on them they invest the surplus liquidity in the stock market as borrowers abstain because of higher cost of borrowing. This tends to increase the stock market capitalization. Ologunde, Elumilade, and

Asaolu (2006) also found this positive relationship between interest rate and stock market capitalization.

Since our empirical study covers a relatively small time horizon for understanding the relationship of changes in the interest rates with stock market's capitalization. We would wish that future studies are carried out and should analyze the relationship over a longer time period, for five to ten years. It may also add value to the given bodies of knowledge on stock market's capitalization and portfolio investments by analyzing how changes in interest rates effect portfolio choices of large corporate stock market investors, for example mutual funds; as their investment choices influences market capitalization significantly.

## REFERENCES

- 1) Adesola S.M. (2001). "*Public Sector Financial Management and Accounting*. Lagos" Comfort Press and Publishing Company Ltd.
- 2) Adetayo E. Dionco (2001). "*Guide to writing business research*." Ile-Ife Obafemi Awolowo University Press Ltd.
- 3) Alile, H. I. (1984). "*The Impact of stock market in the economic Development in Nigeria*" Paper presented at the Kaduna Chambers of Commerce.
- 4) Alile, H.I. and Anao, A.R. (1986). "*The Nigerian Stock Market in Operation* Lagos" Jeromelaiho & Associates.
- 5) Anyanwu, J.C. (1993). "*Monetary Economics: Theory, policy, and Institutions*. Onitsha:" Hybrid Publishers Ltd.
- 6) Bento J. Lobo. (2005). "*Interest Rate Surprises and Stock Prices*" The Financial Review.
- 7) Bakare, R. R. (2000). "*The financial market glossary, Lagos*" Price of print limited.
- 8) Bolten S.E., and Weignand R.A. (February 1998). "*The Generation of Stock Market Cycles*" The Financial Review.
- 9) CARUSU MASSIMO. (2006) "Stock Market Fluctuations and Money Demand in Italy, 1913-2003" Economic Notes by Banca Monte dei Paschi di Siena SpA, vol. 35, no. 1-2006, pp. 1-47.
- 10) Pearce D K; Roley V V © 1985. "*Stock Prices and Economic News*" The Journal of business.
- 11) Daniel Shala (1999). "*Understanding capital market and secrets of making money on the stock exchange*" Lagos: Macmillan Nigeria Publisher Ltd.
- 12) Ekundayo, J.O. (1990). "*Evolution and Development of NSE*." Business Times Monday, March 5<sup>th</sup>, 1990. Hamburger M.J. and Kochin L.A. (1972). "*Money and Stock Prices*" The Channel of Influence.
- 13) Foote G. William. (1989) "The Rationality and Efficiency of Stock Price Relative to Money Announcement Information" The Financial Review VOL. 24 No. 2 Pp. 281-298.
- 14) Hendershoot P.H. (September 1967). "*The Structure of International Interest Rates*" The US T-bill Rate and Eurodollar Deposit Rate: The Journal of Finance.
- 15) Hamburger M.J. and Kochin L.A. (1972). "*Money and Stock Prices*" The Channel of Influence.
- 16) Henry P.B. (April, 2000). "*Stock Market Liberalization, Economic Reform and Emerging Market Equity Prices*" The Journal of Finance.
- 17) Jefferis, K.R (1995) "SAJE".
- 18) Mark J. Flannery and James C. M. (September 1984). "*The Effect of Interest Rate Changes on the Common Stock Returns of Financial Institutions*".
- 19) MAYER, C. (1989). "Myths of the West. Lessons from Developed countries for Development Finance" World Bank Working Paper Series WPS 301. Washington DC: World Bank.
- 20) Muscatelli, Anton & Spenelly, Franco (2000). "*The Long Run Stability of the demand of Money: Italy 1861 - 1996*". Journal of Monetary Economics, Vol . 45, issue 3.
- 21) Ologunde A.O., Elumilade, D.O and Asaolu, T.O. (2006). "*Stock Market Capitalization and Interest Rate in Nigeria*" A Time Series Analysis: International Research Journal of Finance and Economics.
- 22) Robert J. Barro. (1990). "*The Stock Market and Investment*" The Financial Review.
- 23) Singh S.P., and Talwar, P. P. (March 1982). "*Monetary and Fiscal Policy and Stock Prices*". Journal of Business and Finance and Accounting.
- 24) State bank Of Pakistan "*Statistical Bulletin (2006)*" Statistics and Data Warehouse Department.
- 25) State bank of Pakistan Banking and Supervision Department. "Quarterly Performance Review of the Banking System (June 2005)."
- 25) State bank of Pakistan "Index Numbers of Stock Exchange Securities (December 2006)" State bank of Pakistan Statistics Department.