Impact of Interest Rate on Stock Market Performance(A Case study of Karachi Stock Exchange)

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Abstract

The Karachi Stock Exchange (KSE) is the largest stock exchange in Pakistan and one of the largest in South Asia. The KSE operates as an automated trading platform and offers a range of products, including shares of companies listed on the exchange, bonds, and other securities. The stock market in Karachi is an important indicator of the health of the Pakistani economy and is often used as a barometer of investor sentiment. The performance of the KSE can be influenced by a number of factors, including economic growth, inflation, interest rates, and political stability. Overall, the KSE has been performing well in recent years, with the benchmark KSE 100 Index reaching record highs and attracting increasing amounts of foreign investment.

Keywords: Stock index, efficient market, Stock returns, Investment decisions

1. Introduction

The Pakistan Stock Exchange (PSX) is the largest stock exchange in Pakistan, located in Karachi. It was formed in 2016 through the merger of the Karachi Stock Exchange, Lahore StockExchange, and Islamabad Stock Exchange. The PSX is a market where publicly traded companies' shares are bought and sold. The stock market is an indicator of the performance of the country's economy, as well as a platform for investment. The PSX offers a wide range of financial products, including equity shares, debt securities, and exchange-traded funds. It

operates under the supervision of the Securities and Exchange Commission of Pakistan (SECP) and follows the rules and regulations set by the SECP.

The Karachi Stock Exchange (KSE) was the first stock exchange in Pakistan, established in 1949. It was one of the three stock exchanges in the country, along with Lahore Stock Exchange and Islamabad Stock Exchange. In 2016, the KSE merged with the other two exchanges to form the Pakistan Stock Exchange (PSX), which is now the largest stock exchange in the country and operates from Karachi. The PSX offers a platform for the trade of shares of publicly listed companies and other securities, serving as a barometer of the country's economic performance and a source of investment opportunities. The PSX is regulated by the Securities and Exchange Commission of Pakistan (SECP) and operates in accordance with its guidelines and regulations.

Interest rate is the cost of capital to use the resource handed. From the provider’s perspective, it is the lending rate, while for the taker, it's the borrowing rate. Investors are concerned about the return on their invested coffers. Numerous factors can impact that particular return, or in other words, numerous threat factors are associated with the return. In a unpredictable frugality stock indicator is principally subject to interest rate threat. Affectation is linked with interest rate and exchange rate also affects interest rate in a country and vice versa. This exploration paper focuses on the arising frugality of Pakistan. Three stock exchanges are operating in Pakistan, Pakistan Stock Exchange (PSE), Lahore Stock Exchange (LSE) and Islamabad Stock Exchange (ISE). Pakistan’s stock exchanges are considered largely unpredictable; three fiscal heads were seen in the once decade political insecurity, bad governance, and bookmakers’ grip.

LITERATURE REVIEW

According to Bordalo, Gennaioli, Porta, and Shleifer(2019), stock returns can be used toprevision unborn affectation and interest rates rather of former studies. They've handed a model that supported the positive and significant relationship between unborn interest rates and stock returns. Seidmann(1987) handed the study of the relationship between the increase in the present and unborn interest rates and fixed prices of stock holding enterprises and suggested the possible conditions for effective relationship and force policy in response. Flannery and James (1984) used the taster of marketable banks, stock savings and loan association and studied the relationship between interest rate compassion with respect to the maturity composition of stocks. generally, request model consists of one factor that's the return on an indicator, used as a cover to prognosticate about request but insertion of interest rates has been supported by empirical exploration as a important factor to read about request portfolio along with returns. Sohail and Hussain(2009) find a negative correlation between the Consumer price indicator and stock returns. The study was on the base of long and short- run macroeconomic variables and their force on the frugality. As Fisher's thesis suggested, the real rate of interest and anticipated affectation are factors of the request rate of interest(Fisher, 1965); therefore the real rate of interest doesn't exaggerate in the long run by the affectation rate.

Chatrath, Ramchander, and Song (1997) find a negative connection between stock proceeds and affectation trends in India in their study, whereas, Ratanapakorn and Sharma (2007) probe the positive relationship between the two. Humpe and Macmillan (2009) are in favour of a negative association. colorful studies are conducted to explore the relationship between interest rates, and stock returns; some came across with positive relationship(Ratanapakorn & Sharma, 2007; Wang & Chen, 2020) and some handed the substantiation of inverse relationship of the below two variables(Humpe & Macmillan, 2009). The former study was on S&P 500 and Treasury bill rate of US whereas; the ultimate was on Treasury bill rate and S&P 55 in US.

According to L´opez and Navarro(2013) a Eurozone model indicator represents total request projected volatility of interest rates. They suggested a methodology for the interest rate trends and their separate volatility for the Eurozone, which is grounded on utmost liquid interest rate derivations that are bottoms and Caps. principally, the methodology suggested is the construction set for the volatility of interest rates. Dinenis and Staikouras(1998) delved the impact of interest rate changes on stock returns of a sample of 5 fiscal institutions of the United Kingdom. The sample contained banks, insurance companies, investment companies,investment trusts and finance companies. The model was inclusive ofnon-financial institutions for comparison purposes. A significant negative relationship was set up by using this double indicator model. Different studies set up no relationship or least connection between interest ratechanges andnon-financial institutions(Brooks & Tsolacos, 1999; Bae, 1990; Chatrath etal., 1997).

Aharony, Saunders, and Swary(1986) suggest that the selection of variable i- e interest rate, is not sensitive to the duration like short term, intermediate or long run. Schwert(1987) probe that fiscal institutions are more sensitive to interest rate movements because of their means and arrears. Their stock returns are also sensitive to surprising or unanticipated interest rate

changes. Galai and Masulis 1976) suggested the model for interest rates and stock returns by pressing the stocks as a call option; therefore equities should be affected by interest rates.

Joseph and Vezos(2006) examined the effect of two variables interest rates and foreign exchange rates on stock returns of fiscal institution. The study was grounded on the EGARCH model to easily watch the diurnal returns. Data wasn't completely satisfied after employing statistical modes but generated better fits than other model employed. Further, suggested that effective hedging strategies are needed for fiscal institutions because they warrant perfect hedging, and their stock prices aren't inclusive of hedging. King and Wadhwani(1990) suggested the volatility transfer thesis that fiscal requests are exaggerated by unforeseen shocks of volatility. therefore, investors want to invest in other fiscal means than common request means. Banks are also part of these investors.

The volatility of interest has a different impact on different institutions, so these fiscal institutions also vary according to interest rate perceptivity. Saunders and Yourougou(1990) handed substantiation that fiscal institutions are directly affected by interest rates and foreign exchange movements. Stock returns and costs of fiscal institutions are directly affected by FX and interest rate movements, US has a significant proportion(Madura & Zarruk, 1995). Banks are considered as fiscal interposers; they are largely sensitive to the interest rate movements and trends while working for their guests. Elyasiani and Mansur(2005) examined the volatility of interest rates in the short term and long term with their separate stock proceeds distribution of bank. Estimation was for three portfolios of banks and generated positive significant results. Elyasiani and Mansur(2004) attribute the interest rate volatility and its position with marketable bank's stock returns. Choices are of duration, studies examined the long run, intermediate and short- run interest rates of fiscal institutions.

Benink and Wolff(2000) used the data from the check to dissect the unlooked-for short and long-run interest rates and banking sector profitability. Interest is also considered as a threat because of its shock or if it move in the contrary direction. Interest rate threat operation is a pivotal factor for fiscal institutions.(Kane & Unal, 1988) revealed that interest rate is the time- varying factor; hence stock returns aren't direct, and their linearity was challenged. Park and Choi(2011) delved the study of US property insurers stock returns with changes in interest rates by using 1970 two-indicator model for comparison of three different interest rateindicators. The study reveals the different consequences of real and unanticipated interest rates affects.

Sweeney and Warga(1986) attributed Stone's model and high perceptivity of stock proceeds of colorful companies. Different studies used this model as a revision of the original model by adding two indicators having different interest rates and compared with volatility (Bae, 1990; Choi, Elyasiani, & Kopecky, 1992; Saunders & Yourougou, 1990). Saunders and Yourougou(1990) used the modified Stone's model for interest rates perceptivity of stock returns. This model was the variant of the original Stone's model. An inverse relationship was set up. Short- run changes of interest were supposed least sensitive to the stock returns. still, some literature showed a positive correlation between short- run interest rate changes and stock returns, whereas long- run interest rate change impact stock proceeds. Akella and Chen(1990) handed literature on this area.

GARCH- M model is the imperative supposition for chancing a negative connection between interest rate changes and stock returns insurance equities values in the long run(Brewer III, Carson, Elyasiani, Mansur, & Scott, 2007). L´opez and Navarro(2013) delved the study on unstable returns and interest rate perceptivity in Asian requests. GARCH- M was the parameterto dissect time- varying interest rates in different request conditions. Gap was set up that changes weren't invariant hence before 1997(Asian fiscal extremity), the consequences are different from current situation. The current request condition is important to consider interest rate threat and asset pricing. APT model was an important fashion in this study. Real Estate Investment Trusts, REITs have a significant impact on interest rates(Brooks & Tsolacos, 1999).numerous studies were conducted for property stock returns in UK, US and Asian requests for analysis of unanticipated interest rate factor and its relationship with returns. Return on other means is told when the interest rate on bonds changes. The study is in agreement with common stock returns and interest rate factor.

Interest rate is also considered as a resource allocation index(Ferrari, Masetti, & Ren, 2018). Along with the over all literature, it can not be neglected that interest rates is a state factor or is a methodical threat part. Fama and French(1993) introduced the three- factor model for interest rate threat as a time- varying factor having gaps in it. latterly four factors model for time- varying ladings of interest rates to reduce asset pricing crimes was introduced. In Pakistan, studies were set up not specifically on the interest rate and stock returns but taking allmacroeconomic variables, and their impact on the frugality was studied. In the manufacturing sectors of Pakistan, stock returns were delved by putting the financial policy on the other hand along with company-specific factors(Ali, Adeeb, & Saeed, 2014). Interest rate factor was also examined but as asub-part of State Bank of Pakistan’s financial course of action.(Humpe & Macmillan, 2009) used impulse response analysis to probe the impact of interest rate shocks on Pakistan’s equity request returns and set up a negative impact.
Ouma and Muriu(2014) also explored the relationship between stock indicators and macroeconomic variables. Yearly data was anatomized by using Arbitrage Pricing proposition (APT) and Capital Asset Pricing Model (CAPM). There was a significant relationship set up.

Critical Analysis

Different studies were in favour of a negative relationship between stock returns of the request and the interest rates. According to some interpreters, interest rates can not determine long- run stock returns or interest rate doesn't affect the stock indicator. It's important to mention then thatthe selection of interest rates and their maturity composition is also important to consider. Maturity composition was also a point of critics. numerous studies don't consider time frames ofinterest rates, or some were in favour of it. Then in this study, Pakistaninter-bank offer Rates were used to check their impact on Pakistan stock indicator. There are 9 time frames of Pakistaninter-bank offer Rates from which 5 were named to check their relationship with the stock indicator.

Conceptual framework

Interest Rates (Independent Variable) → Stock Exchange (Dependent Variable)

The framework of the study is further classified as:

Karachi Inter Bank Offer Rate 1 month Bid Rate

Karachi Inter Bank Offer Rate 3 month Bid Rate

Karachi Inter Bank Offer Rate 6 month Bid Rate

Karachi Inter Bank Offer Rate 9 month Bid Rate

Karachi Inter Bank Offer Rate 12 month Bid Rate

Background of study

Pakistan started in (1997) placement of Meezan bank that is the oldest privately owned financial institution operates on the basis of Shariah complaint rules and regulations (Alharthi et al., 2021). From the date Pakistan has enjoyed both Islamic and commercial banking operated sideby side in the competitive market.

Statement of the problem

It impacts both the economy and the stock markets because borrowing becomes either more or less expensive for individuals and businesses. Higher interest rates tend to negatively affect earnings and stock prices (with the exception of the financial sector). Higher interest rates also mean future discounted valuations are lower as the discount rate used for future cash flow is higher. To shield from risk, investors may consider opting for shorter-term bonds or shorter-life alternative assets.

Significance of this study

This study is different from all former studies conducted in Pakistan's unpredictable frugality for interest rate changes and their impact on the stock indicator and specifically PSE. This exploration would help interpreters dissect the impact of the macroeconomic variable (interest rate) with a different time frame on the PSE Index.

Research objective

The aspire of the study is

• To ascertain the Impact of interest rates of stock market Performance.
• To measure the impact of that relationship.

Research question

The purpose of the study was to check the impact of interest rates with different maturities on the Stock Performance.

METHODOLOGY

Research design and data collection

The data collected was secondary data, and we had linked the Pakistaninter-bank offer Rate from the report published by State Bank of Pakistan(SBP). The data for stock indicator was literal and validated.

Population and sample

In our study, Pakistan stock indicator(PSE 100) closing prices were named. Stock returns were calculated from KSE100 Index yearly prices. Pakistaninter-bank offer Rate shot rates of five windows were named as Pakistaninter-bank offer Rate 1 month, 3 month, 6 month, 9 month and 12 months. The purpose of the selection of Pakistaninter-bank offer Rate was that it's considered as a good deputy of riskfree government rates because, according to literature, these threat-free rates aren't duly request linked.

Research variables

In former studies maturity composition of stocks were taken into account as a variable along with interest rates. Different other variables were also used i- e affectation rate for particular frugality and premonitory programs etc. principally, there were two variables taken for this study Pakistaninter-bank offer Rate rates as independent variable and stock returns as dependentvariable. The independent variable was tested for its different time classes or different majorities from 1 month to 12 months. literal Pakistaninter-bank offer Rates were available of majorities: 1 week, 2 week, 1 month, 3 month, 6 month, 9 month, 12 month, 2 year and 3 year. Bid rates were taken from Bid and Offer Rates.

Selected variables

At its extended form following were independent variables: • Pakistan inter-bank offer Rate 1 month: Pakistan inter-bank offer Rate 1 month Bid rates • Pakistan inter-bank offer Rate 3 month: Pakistan inter-bank offer Rate 3 month Bid rates • Pakistan inter-bank offer Rate 6 month: Pakistan inter-bank offer Rate 6 month Bid rates • Pakistan inter-bank offer Rate 9 month: Pakistan inter-bank offer Rate 9 month Bid rates • Pakistan inter-bank offer Rate 12 month: Pakistan inter-bank offer Rate 12 month Bid rates.

Dependent variable was monthly stock returns of PSE-100 index.

Statistical tests

Following tools were used for data analysis; i) Descriptive Statistics, ii) Retrogression Analysis and Correlation. Retrogression tests were applied collectively on each named maturity of Pakistaninter-bank offer Rate.

Hypothesis testing

The perspective of the exploration was to determine whether there was any relationship between interest rates and the stock indicator. For thesis testing Retrogression Analysis Model was used. We have determined some thesis of the same structure. The null thesis countries that there's no significant relationship between interest rates and the stock indicator, and the indispensable thesis countries that there is a significant relationship between interest rates and the stock indicator. The suppositions of the study are

The Impact of Interest Rate on Stock Market Performance

The data was consisting of 108 observations of the PSE-100 index and Pakistan inter-bank offer Rate monthly bid rates data ranging from August 2005 to October 2014 for two variables, and one variable, ”Interest Rate” was of five different maturities. Descriptive statistics provides mean, and standard deviation of the variables mean for central tendency and standard deviation for a spread for dispersion; the larger the value, the larger the dispersion. The minimum column shows the minimum value of the variable, and for our study, it is the minimum value of Pakistan inter-bank offer Rate. Likewise the maximum column shows the largest value of that particular time maturity. According to Table 1 mean of Pakistan inter-bank offer Rate 1 month is -2.263, and the standard deviation is .1648, Pakistan inter-bank offer Rate 3 month mean is -2.239 and the standard deviation is .1634, Pakistan inter-bank offer Rate 6 month mean is -2.224 and its standard deviation is .1597. Pakistan inter-bank offer Rate 9 month mean is -2.213, and the standard deviation is .1571, Pakistan inter-bank offer Rate 12 month mean is -2.202 and the standard deviation is .1542. Whereas the mean of PSE-100 index returns is 9.4510, and the standard deviation is .3868.

Furthermore, the maximum mean is of PSE-100 index, and the lowest is of Pakistan inter-bank offer Rate 1 month maturity. The standard deviation of PSE 100 index .3868 is towards the high side, which means larger dispersion, whereas; the lowest standard deviation .1542 is shown in Pakistan inter-bank offer Rate 12 month.

There is not much variation in the means of Pakistan inter-bank offer Rates. Standard deviation is gradually decreasing from Pakistan inter-bank offer Rate 1 month to Pakistan inter-bank offer Rate 12 month. Pakistan inter-bank offer Rate 12 month observes the smallest spread than other four maturities.

Results

4.1 Data collection

By philosophical underpinnings current study follows the positivism paradigm and employee the deductive approach for the investigation of results. More than 30 responses are collected from the employees of Stock Market selected from the Karachi city. All employees of Stock Market have batter knowledge and skills about the Stock Trading. Survey show the target respondentsare directly concerned in the Stock Market. Response is collected on the basis of convenience sampling method.

Table I

Variables	Category	Frequency	Percent
Age	25-30	47	45.2
	31-35	46	44.2
	36-40	7	6.7
	41-45	4	3.8
Gender	Male	76	73.1
	Female	28	26.9
Education	Under Graduation	43	41.3
	Graduation	51	49.0
	Masters	10	9.6
	PhD	6	5.8

Table IV

Variables	CA	IHF	SE	SI
Customer Attitude_	0.813			
Interest Rate	0.551	0.917		

Self-Efficacy	-0.045	0.122	0.919	
Social Influence	0.611	0.608	0.098	0.824

Descriptive analysis

In the table five results shows the mean and standard deviation. Standard deviation and average of self-efficacy is greater than Islamic home financing, social influence attitude and Customer Attitude. Same results are repeating for means of all variables.Correlation of Islamic home financing with social influence attitude and Customer Attitudeis positive and significant. However insignificant for the Self –Efficacy.From the results it is shows that initial findings are supporting.

Table V

Variables	Mean	Std. Deviation	SE	CA	SI	IHF
Self -Efficacy	3.4567	1.08243	1			
Employees Attitude	3.2942	0.97421	-0.055	1		
Social Influence	3.4279	0.85664	0.096	.601**	1	
Interest Rate	3.4423	0.84945	0.118	.533**	.605**	1
Performance						

Variable PSE KIBOR KIBOR KIBOR KIBOR KIBOR 100 Index 1 month 3 month 6 month 9 month 12 Month KSE100 index 1 KIBOR 1 month -.376** 1 KIBOR 3 month -.416** .988** 1 KIBOR 6 month -.455** .976** 997** 1 KIBOR 9 month -.489** .966** 991** .998** 1 KIBOR 12 month -.523** .955** .983** .993** .998** 1

CONCLUSION AND RECOMMENDATIONS

Former studies showed a negative relationship between interest rates and the stock returns of the stock request indicators. nearly maturity composition also told the returns. The purpose of the study was to ascertain the relationship between interest rates and the stock indicator. PSE- 100 indicator of Pakistan was named, and its yearly returns were tested with Pakistaninter-bank offer rate rates as the independent variable. There was a largely significant relationship betweenthe variables. The frugality can be affected by advanced interest rates. The relationship between

variables was significant, so the null thesis was rejected, and we accepted the alternate thesis for all of the named majorities of Pakistaninter-bank offer Rate. The accretive effect wasn't the concern of the study, so every maturity of Pakistaninter-bank offer Rate was tested singly.

Longer majorities of Pakistaninter-bank offer rates like 2 and 3 times can also be tested which were not named for this study. They might be more influential than named majorities. Stock returns of the stock indicators may be told by numerous other macroeconomic variables. Other macroeconomic variables like exchange rate, financial variables and affectation with respect to time or term can be taken to gain the relationship because interest rate isn't only the factor which can affect stock returns or stock indicator. PSE 30 indicator, Lahore Stock Exchange, Islamabad Stock Exchange ISE 10 can be tested for unborn exploration with respectto interbank rates(Pakistaninter-bank offer rate).

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