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Relationship between Bank Stock Returns and Economic Growth: A Case Study of Banking Sector in Pakistan

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Abstract:

Economic growth is enhanced through financial institutions like banks. The structure of banking segment influences the growth of a country. For this study, we analyzed the banking sector of Pakistan and the period was from 2002 to 2012.The selected variables were stock prices, gross domestic product and financial crisis. The objectives of the study were to find the relationship between banking stock returns and economic growth and whether economic growth indicated through stock prices and the impact of financial crisis on banking sector in Pakistan. We used panel data tests including Hausman test and Brusch-Pagan test using Stata software to conclude our results. The

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stock returns were predicted through stock prices of banks and economic growth indicated through gross domestic product (GDP). Our result proposed that economic growth (GDP) was significantly affected by stock prices. Furthermore, recent crisis posted impact on economic growth and during 2007-08, the GDP ratio dropped from 4.9% to 1.8%. The Return on asset (ROA) values significantly dropped down for the banks. Our results suggested that simple OLS and fixed effect techniques should be used for analysis and our driving hypothesis were proved to be correct. Our study will help the investors to predict the practicability of stock markets and for making financial policies. The future study recommendations advise that the population size should be extended from Pakistan to other countries around the world.

Key words: Economic Growth, Banks, Financial Crisis, Stock Prices and Gross Domestic Product

1. INTRODUCTION

1.1. Introduction of Bank Stock Returns and Economic Growth

Economic growth is enhanced through financial institutions like banks. The economic growth is enhanced through banks is at different stages of industry. As other financial intermediaries play role in economic growth, the banking structure also influences the growth of a country (Cole 2007). Previous researches have also shown that the economic growth is forecasted through the returns of stock markets. We will broaden our study by looking at the stock returns of the banks and examine whether the economic growth can be interpreted through the bank stock returns.

The returns of the stocks and the prices of those stocks get affected through macroeconomic indicators like GDP. The prices of the stocks and the returns of those stocks is effected through the economic factors like GDP. So, macroeconomic variables like GDP etc are significant sign in predicting the economic growth of an economy. Finally, these variables are used to predict the increase or decrease in economic growth of a country (Ali 2013).

The stock market must notably be connected to macroeconomic variables like GDP to achieve profits of investments. The stock market is very important to accelerate economic growth in the course of rising liquidity of financial resources for investors to make fruitful investment judgments. The role of capital market is very important in determining the development of an economy. The well-organized capital market boosts up the economic growth and success of the economy.

Mehrara (2006) proposed that prices of the stocks leads to variations in the economic variables like GDP. He suggested that when the stock prices reveal such essentials then these prices can be the sign for economic activity. Moreover, he suggested that when the economic variable is affected through the stock prices, it indicates the efficiency of the stock market. Hence, the link among stock prices and macroeconomic variables can play significant role in making the macroeconomic rules of country.

1.2. Introduction to banking sector in Pakistan

Banking sector is considered as the major source of development for every economy. The banking sector is also a major source of development in Pakistani economy. The banks provide security to financial assets of customers and loans and also grant profits to its customers. All the monetary operations are done with the help of the banks within an economy.

From 1947, Pakistani Banking sector faced severe changes. It faced the scarcity of reserves, uncertainty due to widespread biased circumstances. However, in 1948, State bank of Pakistan was launched as central bank of the country. With the help of which, the economy got flourished. During the many past decades, the Pakistani banking sector has undergone major developments.

In 2010, there were 36 commercial banks in Pakistan which include 25 private banks, 7 foreign banks and 4 commercial banks. 4 specialized banks were also there. Now, Pakistani banking sector is flourishing day by day and it is providing its customers with up-to-date techniques including online banking, ATM cards and mobile banking etc. In 2012, the total assets were of 9.9 trillion worth showing the progress of the sector (Wikipedia).

1.3. Financial Crisis 2007-08

The financial crisis 2007-08 began in July 2007 when the liquidity crisis was caused by sub-prime mortgages in United States. This financial crisis 2007-08 is commonly called as global financial crisis. The housing mortgage crisis was the prime cause for the global financial crisis. The house owners who had taken loans were unable to repay the mortgage payments. At this time period, the banks also faced liquidity crisis because borrowings and giving loans were difficult and the worth of lands and homes become lesser. So, the banks could not get their money back which caused them to bankrupt. The global financial crisis remained till September 2008 when all the stock markets around the whole world got crashed (Davies 2014).

2. RESEARCH QUESTIONS

The following questions are the motivation source behind the study:

1. What is the relationship between the stock returns and the economic growth?
2. What is the link among stock prices and GDP (economic growth)?

3. What is the impact of financial crisis on stock prices and GDP?

3. RESEARCH PROBLEM

Banking sector is the backbone of financial sector of Pakistan. This particular study will investigate that how the changes in the stock prices of banks are affecting the economic growth in Pakistan.

4. RESEARCH OBJECTIVES

The link among stock returns of banks and economic growth and whether the economic growth is indicated through the stock returns of the banks is the main objective of our study and the impact of recent financial crisis 2007-08 in banking sector in Pakistan .Data will collected from the manual of Karachi stock exchange and world bank website.

5. LITERATURE REVIEW

Economic growth widens up with a powerful banking structure (**Cole 2007**), the bank stock returns are associated with the economic growth or not and whether the stock returns and economic growth are affected by financial crisis or not? The following literature will shed some light on this area.

5.1. Relationship Between Stock Prices and GDP

Khan (2014) analyzed the relation among stock prices and macroeconomic factors of Karachi Stock Exchange (KSE) of Pakistan. He studied the relation from 1971 to 2012. He concluded that there exists a significant relation between GDP and stock prices.

A strong positive relation among stock prices and GDP exists. Stock prices and returns of these prices are influenced through macroeconomic factors (**Duca 2007, Mohammad 2009 and Azam 2010**). A contradicting study reveals that macroeconomic variables are not well significant in forecasting stock returns while stock returns are utilized for forecasting about macroeconomic variables (**Tangjitprom 2012**).

Boubakari (2010) surveyed and concluded that for highly efficient markets there exists a significant relationship among stock markets and economic growth. He concluded that a significant relation exists among economic growth and GDP. The macroeconomic factors for each economy, whether it is developed, developing or underdeveloped which influence returns of stock markets, vary (**Rjoub 2009**).

Stock prices are the predictors of stocks and inform about future profits, future economic activity and indicators for forecasting returns. Finally, for setting macroeconomic policies, macroeconomic variables and stock prices are utilized. (**Boucher 2006; Mansor 2007 and Kuwornu 2011).**

Variations in stock prices and corresponding returns are affected through macroeconomic variables. Moreover, economic activities are affected through changes in stock prices. The economic and political circumstances are affected through changes in stock prices (**Maghayereh 2003 and Ali 2013**).

The task of macroeconomic variables (GDP, inflation etc.) is vital in stock market activities. A significant positive link is observed among share prices and macroeconomic variables. The result is supported through cointegration analysis (**Adam 2008**).

Gunasekarage (2004) declared different justifications of significant relationship among stock prices and economic activity. The leading one is that the stock prices are the most important factor in welfare of the economy that's why information of real activity is revealed through stock prices.

Second justification is stock prices are influenced through variations in discount rates. The last one is that variations in stock price causes variations in overall economy like investments and demand of products.

5.2. Banks' Stock Returns and Economic Growth

Cavenaile (2013) analyzed that a significant relation among banks, stock markets and economic growth. Cavenaile interpreted that a significant relation among stock markets and economic growth exists whereas banking has a strong positive impact on economic growth than other stock markets.

A study was conducted in Pakistan in which GDP was taken as measure of economic growth, the banking stock returns and economic growth were analyzed and a significant link among bank stock returns and economic growth was found (**Bilal 2013**) . A study was done in which GDP (Annual growth rate) and GNP (per capita) were used to recognize the link among stock returns and economic growth (**Butt 2010**).

Economic growth is influenced by the structure of banking system. The increased concentration of banking systems decreases growth of industries. So, banking structure plays significant role in growth of the economy. Moreover, the banking sector enhances the shares of financial system and also participates in economic growth (**Ali 2011 and Mitchener 2010**).**Carlin (2003)** says that the countries with former phases of development have unusual patterns of economic growth. A significant relation exists among growth and bank concentration where the countries face lesser GDP per capita.

Hong (2007) quoted that in their study asymmetric correlations of stock returns are seen. In these correlations, the correlation of stock returns is higher when market goes down instead of lower correlation. The liquidity of stock markets and development of banking sector forecast economic growth (**Levine 2008**).

Past studies and financial theories (i.e. Asset pricing theory) also demonstrate that economic growth is forecasted through market stock returns (**Cole 2007**). Cole also describes a significant relationship among future economic growth and bank stock returns that is not dependent upon the link among growth and returns of markets. This study starts the literature on bank stock returns and economic growth. Capital of the institutions does not explain the economic growth (Cole 2007).

Beck (2000) explored the link among affect of banks and stock markets on economic growth. He concluded with a significant impact of stock markets and banks on economic growth.

5.3. Impact of Financial Crisis on Economic Growth

Bodurtha(1989) stated that stock returns are represented through systematic news within the economy and the prices of those stocks are set with the unity of these disclosures. United States and United Kingdom were the strongest economies around the world, from where the financial crisis of 2008 got started. Due to this crisis, a slump was observed in the stock markets and all the financial institutions (**Adamu 2008**). The purpose of our study is to see the impact of this financial crisis in Pakistani financial markets.

Financial (banking) crisis can significantly influence economy (**Aspachs 2005**). **Drake (2005)** studied the banks in Hong Kong and observed that the systems of these banks might be influenced by the issues faced by the organizations (banks), these issues cannot be controlled by the organizations themselves. He confirmed that the banking system of Hong Kong is influenced by environmental factors although the nature of influence varies according to bank sizes and structure of banks.

Serra (2000) found that during a collapse of financial markets, the correlation is high but as soon as the collapse diminishes or the markets are in improvement phase, the correlation becomes low.

5.4. Impact of Financial Crisis in Banking Sector of Pakistan

This part will elaborate the main crux of the research. In this part, we will analyze how financial crisis of 2007-08 has affected Pakistani banking sector. **Calomiris (2012)** observed developed and emerging markets and concluded that the liquidity disaster was unpredictable and bigger in urbanized countries. The most recent recession of 2007-08 harshly and badly influenced the whole financial world and its effect was the collapse of financial systems all around the world.

Shehzad (2013) conducted a study in which he finalizes that the recent global financial crisis was the banking crisis. He demonstrated that banks were strongly influenced by the crisis. In developing countries, the prices of the stocks varied rapidly but were improved rapidly as well after the crisis. Moreover, he concluded that large banks were affected largely by the crisis and the stock prices of those large banks were influenced more than the stock prices of small banks.. Finally, he wrap up the discussion with the argument that if the study would be conducted with 1000 banks of the world, the argument will be the same that this financial crisis was a banking crisis.

The financial crisis of 2007-08 damaged the economy by limiting the financial firms to reduce loans, limit the number of constructions, limit the firms to increase the funds from other financial markets and finally by reducing wealth and decreased consumption from consumer sides (**Duca and Bordo 2010**).

Haq (2014) conducted a study in Pakistan and the study was conducted to measure how recent financial crisis of 2008 has affected Pakistan. He also tested that the effect of this crisis on GDP of Pakistan. He concluded that Pakistan suffered a lot from this financial crisis but this crisis impacted sector more than the financial sector. **Khilji (2011)** experienced a contradicting study. The purpose of the study was to confirm whether recent financial crisis had a significant impact on Pakistani commercial banking sector or not. The results elaborated that current financial crisis affected the Pakistani commercial banking sector but the results were not so considerable.

A study was conducted to examine the performance of Islamic and conventional banking sector in Pakistan during the global financial crisis 2007-08 . The results suggested that conventional banking is more efficient, more profitable and more risky than Islamic banking. Moreover, banking principles and risk management policies were the main reason for a bank being affected by the crisis and the frail performance was due to sector limits and openness of those sectors towards vulnerabilities and commercial banks were significantly affected by the crisis (**Hassan 2011; Phulpoto and Akram 2012).**

A study concluded that those banks which perform aggressive credit growth, dependence upon short term funding, have greater size and lesser capital amount face greater risk revelation and the banks with increased income and well-built deposit foundation face lesser risk revelation. Moreover, he concluded that those banks perform better who have more liquid assets, increased loan to asset ratio whereas those banks perform worse who are more investor welcoming. (**Beltratti 2009 and Altunbas 2011).**

Ali (2012) quoted that recent global financial crisis affected the US market and then affected the financial markets all over the world. He took Pakistani and Indian stock markets as sample and concluded that recent global financial crisis has affected Pakistani financial sector mildly but the effect of this crisis on Indian financial sector is much greater and significant.

McCartney (2011) analyzed Pakistani stock market and concluded that Karachi Stock Exchange was affected by the global financial crisis of 2008.He concluded that Pakistan's economy was facing downturn in investments in domestic sector, exports, investment in foreign countries as well as slump in growth and credits of banking sectors. The slow growth of GDP was also seen and indicated that major attention should be paid for formulation of domestic procedures and authority rules.

Khawaja (2010) suggested that as a result of recent financial crisis , the variations in the fiscal regulations were made. With these variations, exchange rates' values become degraded, exports were minimized and finally poverty level flared up. Due to these reasons, the crisis impacted Pakistani sectors. He concluded that Pakistan experienced financial crisis because macroeconomic inequality was prevailing over there and finally, Pakistan was dealing highly in textile exports and faced major slump in textile sector was also this.

Malik (2009) concluded that the current financial crisis majorly influenced the financial institutions all over the world. Moreover, he concluded that banks faced crisis because the outsourcing from foreign banks got reserved and they faced credit issues. The crisis was faced by all the financial institutions, is a proof towards the reality that all financial markets are interlinked to each other.

6. DATA AND METHODOLOGY

The banking sector of Pakistan is the population of the study. The sample consists of 13 banks out of which 12 are non-islamic while remaining is Islamic (The list of the banks is mentioned in Table 1 in appendix at the end of paper). The sample was selected on the base of presence of these banks during our sample time period. Time period under study was 2002-2012.

Secondary data sources were used to analyze data which include yearly manual of Karachi Stock Exchange and worldbank website. Stata software was used to analyze the data. This study investigated the relationship between the stock returns and economic growth, the relationship between stock prices and GDP (indicating economic growth) and finally the impact of recent financial crisis 2007-08 on stock prices and GDP relation and impact of all these variables in Banking sector of Pakistan. For this analysis, we used the methodology employed by Cole(2007). Regression and correlation analysis were run and panel data tests (Hausman test for fixed versus random effect and Brusch-Pagan test for random effect versus OLS) were employed.

6.1. Research Model

The model being used to test hypothesis is:

$$Y_{it} = \alpha_i + \lambda Y_{i(t-1)} + \beta' X_{i(t-1)} + \varepsilon_{it} \quad \text{-------------(1)}$$

Y = Dependent Variable = GDP Growth of country

X= Independent Variable= Stock prices

ε_{it} = an error term

Yit on left hand side gives value of base year and Yi(t-1) on right hand side gives the value of base year minus 1.

To test this fixed-effect dynamic model, OLS will be used as is followed by **Cole (2007).**

6.2. Conceptual Model

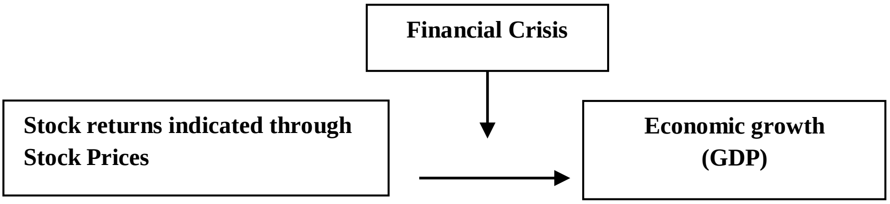

Figure 1: Conceptual framework.

Source: Cole (2007).

The stock returns of the banks are indicated through stock prices and the GDP is indicating the Economic growth of the country. We are investigating the relationship of stock prices and GDP and the impact of recent financial crisis on the stock prices of banks and economic growth.

6.3. Hypothesis Testing

Following hypothesis will be developed for this study:
H1: A significant relationship exists between banking industry stock returns and economic growth.
H2: Banking stock returns and economic growth relationship is affected by financial crisis.

7. RESULTS

7.1. Regression Analysis

The technique that is used to decide the potency of the association between dependent variable i.e. GDP in our case and other variables which include independent variables, is termed as regression. Regression analysis table is given at the end of paper. Prob>F=0.005 which is less than 0.05 indicating "model is highly acceptable". F(3,139)=4.35 means F-value range within 3 to 139 indicating the significance of regression model. R-squared value of 0.080 tells about the 8%variation in GDP due to stock prices. Adjusted R-squared value of 0.066 tells that stock prices interpret 6% of variation of GDP.

GDP has significant relation with stock prices at significant level of 1%. The P-value of 0.017 of stock prices tells that overall model significantly predicts GDP, it shows the acceptance of hypothesis H1. GDP and bank type have insignificant relation indicating no impact of conventional and non-conventional bank on GDP. The P-value of 0.001 indicating the significance of GDP and crisis but it is negatively significant at level of 1% indicating that crisis is prohibiting

GDP to increases. It is showing the acceptance of hypothesis H2. Table 2 is given.

Table 2: Regression Analysis

Number of obs	**= 143**
F(3,139)	**= 4.35**
Prob>F	**= 0.0058**
R-squared	**= 0.0857**
Adj R-squared	**= 0.0660**

Gdp	Coef.	Std. Err.	t	p>|t|	[95% Conf. Interval]	
Stockprices	.0069842	.002896	2.41	0.017	.0012584	.0127101
Banktype	-.1864751	.6183597	-0.30	0.763	-1.409082	1.036132
Crisis	-1.441715	.4420681	-3.26	0.001	-2.315762	-.567668
_cons	4.39839	.5956378	7.38	0.000	3.220709	5.576072

7.2. Correlation Analysis

The analysis in which two or more than two variables change collectively is measured, is correlation. The value of 1 in each column is the correlation of a variable with itself like in first column value of 1 is indicating the correlation of id (banks) with itself id. The positive values of stock prices and bank type with id shows that as one value increases, does the other also increases. Similarly, all other values of correlation are interpreted along with all other variables. Table 3 is given.

Table 3: Correlation Analysis

	Id	t	gdp	stockprices	banktype	Crisis
Id	1.0000					
T	0.0000	1.0000				
Gdp	0.0000	-0.5049	1.0000			
stockprices	0.1324	-0.0017	0.1247	1.0000		
banktype	0.0000	-0.0000	0.0000	0.1200	1.0000	
Crisis	-0.0000	0.0745	-0.2179	0.2820	-0.0000	1.0000

7.3. Hausman Test For Fixed Versus Random Effects Model

The association of other regressors in the model is measured through the Hausman test. This test measures whether to apply random effect or fixed effect model. The fixed effect model will be applied if the rejection of the null hypothesis occurs. If the null hypothesis is being accepted then the random effect model will be applied. If Prob>Chi2 shows a value greater than 0.05 then the random effect test will be applied otherwise the fixed effect test will be applied. The value of 0.0189 which is lesser than 0.05 in our results, indicate we must use fixed effect models for our study. The Hausman test for the fixed or random effect model is shown in table 4 in our study.

Table 4: Hausman Test For Fixed Versus Random Effect Model

	Coefficients			
	(b) Fixed	(B) Random	(b-B) Difference	sqrt (diag (V_b-V_B)) S.E.
Stockprices	.0168689	.0069842	.0098847	0.0035082
Crisis	-1.8703	-1.441715	-.428585	.1643866

b= consistent under Ho and Ha ; obtained from xtreg
B= inconsistent under Ha, efficient under Ho; obtained from xtreg
Test : Ho: difference in coefficients not systematic
Chi 2(2) = (b-B) ' [(V_b-V_B)^ (-1)] (b-B)
= 7.94
Prob>chi2 = 0.0189

7.4. Breusch-Pagan LM Test For Random Effects Versus OLS

When we have to choose whether to apply random effect or OLS test then we apply LM test. If the value of the LM test is significant then we will use random effect model but if this value is not significant, we will use simple OLS regression model. i.e. Prob>chibar2 is less than 0.05 then we will apply random effect test but if this value is greater than 0.05 we will use simple OLS test. In our case, our value of Prob>chibar2 is greater than 0.05 ,we will use simple OLS test. Table 5 shows this LM test in our study.

Table 5: **Brusch-Pagan LM Test For Random Effects Versus OLS**

	Var	sd = sqrt (Var)
gdp	4.091021	2.02285
e	3.904462	1.975971
u	0	0

Test : Var (u) = 0
Chibar2(01) = 0.00
Prob > chibar2 = 1.0000

8. CONCLUSION

Our research is focusing on the elaboration of the relation among stock returns of the banks in Pakistan and economic growth of Pakistan. We employed the methods which are used for panel data for measuring the relation of economic growth of Pakistan and the stock returns of Pakistani Banking sector. We checked the data of 13 banks in Pakistan. We find that the stock returns of banks anticipate the growth. Furthermore, we analyzed the impact of recent financial crisis 2007-08 on the relation of stock returns of banks and economic growth of a country.

The literature elaborates that the changes in stock market development cause the change in economic growth, the relationship of banks, stock returns and economic growth. The literature sheds light on the fact that stock prices are the predictors of stocks and inform about the future profits. Furthermore, concludes that the recent financial crisis has significantly affected the banking sector of Pakistan which is our objective of the study.

In our analysis, we employed different statistical techniques which include regression analysis, correlation and also the techniques for panel data which include fixed effect estimator, first-difference estimator, random effect estimators. Hausman test and breusch-pagan test were applied.

The returns of the banks and the performance of individual banks is measured through return on asset (ROA). During the years of financial crisis 2007-08, the return on asset value of 80% of the banks was dropped. The banks which faced major significant drop down of the return of asset values were Soneri bank, Bank of Punjab, Askari bank, KASB bank, First Dawood investment bank and Security investment bank. While the banks whose ROA values dropped to some extent were National bank of Pakistan, Meezan bank, Bank al-habib, Faysal bank, Muslim Commercial bank and Escort investment bank. These results indicate that the financial crisis 2007-08 posted major impact on the performance of the banks.

During the period of 2007-08 crisis, the stock prices of all the banks under study began to fall down like the stock price ratio of Bank Al-habib were 70% in year 2006 and reduced to 69% in 2007 and in 2008 it reached to 54% and after crisis in 2009 it became 32% then in 2010 it rise up to 35% and so on. This trend is indicating that the prices began to fall during and after the crisis and after an average period of 2-3years it was on the way to rise up.

During the period of 2007-08 crisis, the value of GDP of Pakistan started to fall down. In 2006,it was 6.1% and in 2007 it was reduced to 4.9% and in 2008 it became 1.8% by drastic fall. In 2009 it was increased from 1.8% to 2.8% (According to World bank website). This change of ratios shows the fall of GDP of Pakistan during the financial crisis of 2007-08.

The Hausman test showed the result that accepted our hypothesis and fixed effect model will be preferred for analysis. The Breusch-Pagan test shows that OLS regression will be applied according to our data.

Our results indicate that the bank stock returns strongly influence the economic growth of a country that was predicted through yearly gross domestic product (GDP). Stock prices also play significant role in affecting GDP.We also finalized that the recent financial crisis has significant relation with GDP but the crisis has negative impact on stock prices and GDP. This will prove our hypothesis. We have attained our objective of our study that stock returns and economic growth have linked with each other and financial crisis have impact on these two variables.

Our study will help the policy makers to watch out the stock prices for future predications because the stock prices of banks in Pakistan are positively contributing towards the increase of GDP. So, in order to increase the stock prices, the volume of stocks should be increased or number of branches should be extended and further measures should be taken accordingly.

9. RECOMMENDATIONS

This research aims to identify the link of stock returns and economic growth and the impact of financial crisis on these two variables. It is believed that our study will help out the investors in understanding the conduct of stock markets in attaining the financial objectives and to plan their investments, they could use our study to predict the practicability of stock markets and could decide to spend in or not. On the basis of our study it is suggested that the guidelines for commercial and financial organizations should be responsive to the economic stages and structures of the industries of a country.

10. DIRECTIONS FOR FUTURE STUDY

Our study is generalized to banking sector only, the sectors should be extended with the respective sector stock prices. As our study is considering only one variable to predict economic growth, in further study the number of variables should also be extended. The importance should also be given to the different features of the banks under study like bank size and performance etc. The existing literature of financial crisis in Pakistan is very little so efficient attention should be paid towards this point also.

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APPENDIX

Table 1: List of Banks under Study

List of Banks	Bank Code
Bank Al-Habib Ltd.	01
Bank of Punjab	02
Escort Investment Bank	03
Faysal Bank	04
First Dawood Investment Bank	05
KASB bank	06
Meezan bank	07
Muslim Commercial Bank	08
National Bank of Pakistan	09
Security Investment Bank	10
Soneri Bank	11
Askari Bnak	12
Habib Meteropolitian Bank	13