Factors influencing profitability of conventional banks as measured by Tobin's q: evidence from banking sector of Pakistan

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Abstract

Financial sector is the key player to enhance sustainable economic growth. Commercial banks play an important role to improve the performance of the financial sector of the economy and their profitability is intricately connected to the soundness of the entire economy. The purpose of this study is to determine the internal determinants (bank specific) and external determinants (macro- economic) of profitability. In this regard, the study adopted quantitative research design by using the panel data of 17 commercial banks of Pakistan over the period of 2014-2018. Internal factors analyzed in this study were Liquidity, Size and Capital Adequacy. While external factors were Gross Domestic Product (GDP) and Inflation. The data was analyzed by using simple OLS regression and Tobin's Q ratio. The analysis showed that GDP has significant impact on profitability. However, inflation has no impact on the profitability. Tobin's Q ratio of most of the banks are increasing which depicted their equilibrium position. Based on the findings, the study recommended some policies that will encourage banks to reduce credit risk and minimize their liquidity holdings. Moreover, Government should take the proper initiatives to enhance the confidence of investors towards stock market.

Introduction

Banks contribute significantly to the growth and development of the economy. Banks provide assistance in the financial development of the country as well as provide various opportunities to people to make investment and saving plans through verified and guaranteed methods of investments (Sufian & Habibullah, 2009). Profitability of banking sector contribute not only in economic growth, but also helps to bear the external and negative financial shocks (Athanasoglou, Brissimis, & Delis, 2008). Rose (1999) described Profitability as the after-tax net income usually measured by return on assets and return on equity. Profitability is the capability of the company to produce earnings. There are many macro-economic factors that affect profitability including real interest rate, inflation rate, real gross domestic product, and imports and exports of a country. Therefore, it seems very crucial to investigate the determinants of the profitability. The major concern is profitability and there are numerous external and internal factors that have some effects on the profitability of the banks. Internal factors they mostly consist of liquidity, capitalization, bank size, and operating efficiency. Conversely, external factors include Inflation and GDP.

Banks perform the duties of intermediary between the investors and end users and facilitate them in different business activities. Banking sector represented as the hub of financial sector with 88% share in last 10 years in Pakistan. Currently, there are 24 scheduled and cooperative banks (commercial banks) in Pakistan. Out of which, 17 conventional banks are listed in Pakistan Stock Exchange. Banking sector of Pakistan remained under the implementation of constant reforms and structural changes. Since 1947, several commercial banks have been merged to implement the structural reforms. Commercial banks showed remarkable growth in 1970. The maximum share of total assets around 90% of banks were hold by financially unproductive public banks in the period of 1980 to 1990. As a result, the profits decreased and ultimately, banking sector reforms were indulged in addressing these issues like lending rates and privatization etc. (Anwar, 2011). After the registration of banks in stock exchange and with the beginning of Islamic banking in 2002, the banks started to perform effectively and earned huge profits even in global financial crisis of 2008-2009. Commercial banks played very considerable role in the growth and development of economy. But, they are also badly affected due to the bad macroeconomic conditions in past decade (Ahmad, Nafees, & Khan, 2012). Pakistani banks faced the challenges of financial instability due to the adjustments in the economic indicators.

Pakistan is dominated by commercial banks. Hence, it is necessary to analyze the association of their profitability with the development of Pakistan. Financial reports presented the financial results and related information to different stakeholders including investors, customers, and regulators. Financial reports also explain how company performed over a specific time and helpful to make investment decisions. The relevant information is provided by such financial reporting activity for making important business decisions (Dubelaar, Sohal, & Savic, 2005). Therefore, this study is conducted to identify the most important external and internal factors on the profitability of conventional banks and also analyze the current market situation of banks for investors that would be able to add the strategies to enhance the development of the banks.

1.1 Research Questions

1.1.1 Does macroeconomic factor GDP affect the bank's performance significantly?
1.1.2 Does macroeconomic factor Inflation affect the bank's performance significantly?
1.1.3 Does macroeconomic factor Liquidity affect the bank's performance significantly?
1.1.4 Does macroeconomic factor Size affect the bank's performance significantly?
1.1.5 Does macroeconomic factor Capital Adequacy affect the bank's performance significantly?
Research Objectives
1.2.1 To determine the impact of GDP on Return on Assets.
1.2.2 To determine the impact of Inflation on Return on Assets
1.2.3 To determine the impact of Liquidity on Return on Assets.
1.2.4 To determine the impact of Size on Return on Assets.
1.2.5 To determine the impact of Capital Adequacy on Return on Assets.
1.3 Scope of the study

The banking sector is a speedily growing industry of Pakistan. Abidi and Lodhi (2015) stated that commercial banks play an important role in the economic development of Pakistan. There is much competition in occupying a superior position in financial system that every bank is trying to improve the overall performance along with profitability (Rashid & Jabeen, 2016). There is a significant contribution of several industry-specific, bank-specific financial and macroeconomic factors in banking structure and performance. Therefore, this study aims to determine the impact of bank specific factors and macroeconomic factors on Return on Assets. 24 commercial banks are working in Pakistan. we have selected 17 listed conventional banks over the period of 2013-2017.

Literature Review

2.1 Theoretical Background

The profitability of a bank may be affected due to different variables. A portion of these variables can positively influence the profitability of banks, while others have negative affect. Some of these factors that influence the productivity of a bank may be under the control of the banks administration and the others may be out of control. Mostly internal factors are under the control of bank's administration. These are also called bank specific factors and they can be treated as positive or negative based on their specific effect on the profitability of the bank. These variables may identify as credit risk, capital structure, loan portfolio management, liquidity management, expense management and diversification of the products/ services of the bank. The external variables which are out of control by the management may incorporate components identified with the dimension of rivalry in the business to which the bank has a place (concentration), boundaries identified with passage to and exit from the business, the pace of economic development, the nature of the guidelines and supervision of the banks, inflation, money related extending, and fiscal policies and monetary policies (Rao & Lakew, 2012).

2.2 Variables

This study designs the equation to measure the determinants of the profitability. To measure the influential determinants of conventional banks, the hypothesis of the research is as under:

2.2.1 Relationship of GDP and bank's Performance

GDP is one of the essential macroeconomic indicators which is used to measure the strength of the economy of a nation, and it is a proportion of the general financial yield inside a nation's fringes over a specific time, more often a year. Economic development and financial segment performance are significantly positively connected (Levine, Loayza, & Beck, 2000). The real GDP development is relied upon to positively affect the bank's productivity. Fani, Khan, Kumar, and Kumar (2018) analyzed the effect of external and internal factors on the performance of banks and found that liquidity, capital adequacy, asset quality, and inflation have insignificant positive correlation with banks' performance. However, GDP, management efficiency, earning quality and stock market performance have significant positive correlation with bank's performance. Furthermore, Kamran, Johnson and Sammer (2016) have analysed the determinants of the bank's profitability in Pakistan and found that the GDP, Size and leverage ratio have significant effect on bank's profitability. Moreover, GDP was found to have significant positive affect on ROA and ROE (Bilal, Saeed, Gull, & Akram, 2013). Another study conducted in Turkey by Anbar & Alper (2011) by using the panel data analysis over the period 2002 to 2010, and found that Asset size, Non-interest income/assets and Real interest rate have Positive impact on ROA. However, Inflation, Capital ratio, Deposits/assets, Net interest margin and GDP have no significant effect on the profitability.
So, we propose that

H1= GDP has impact on ROA of Conventional Banks

2.2.2 Relationship of Inflation and bank's performance

Zopounidis and Kosmidou (2008) stated that there is a relationship between inflation and performance of the banks. To investigate the association between the macroeconomic factors, financial performance and firm characteristics of manufacturing companies in Nigeria, a study was conducted by Egbunike and Okerekeoti (2018) by using multiple linear regressions to validate the hypothesis and found no significant effect for exchange rate and interest rate, but found significant effect for inflation rate and GDP growth rate on ROA. Furthermore, the firm characteristics showed that firm size, liquidity and leverage were significant. Ali (2015) found that ROA and ROE were significantly affected by Asset Management, Assets Size, Liquidity, Asset Quality, Deposit, Operating Efficiency, Gearing Ratio, and Financial Risk (internal determinants) while (external determinants) Inflation and GDP are insignificantly affected the bank's profitability. Therefore, we propose that

H2= Inflation has impact on ROA of Conventional Banks

2.2.3 Relationship of Liquidity and bank's performance

The liquidity of bank is calculated by the proportion of liquid assets. This proportion demonstrates the ability of bank to meet the payments as and when its investors and different providers of funds require. The lower proportion will put the bank in trouble in gathering payments in ideal time and subsequently its liquidity low. The lower proportion would imply that the bank will not easily get reserves or else it should bring about an incredibly high premium rate which will rise the expense of subsidizing and negatively affect the profitability. A very higher proportion will show the abundance of inactive liquid assets. Therefore, higher proportion level forecast the sign of troublesome, and consequently proper investigation takes place (Rao & Lakew, 2012). Curak, Poposki and Pepur (2012) analyzes the industry-specific, bank-specific and macroeconomic determinants of profitability with a sample of 16 banks in the Macedonian banking system over the period 2005-2010. They found that liquidity risk, operating expense, and solvency risk have significant negative affect on ROA. Vieira (2010) found the insignificant positive association between profitability and liquidity in the short run. Petria,

Capraru and Ihnatov (2015) investigated the main determinants of bank's profitability in EU27 over the period 2004-2011. They selected panel level fixed effects to conclude the result and found that management efficiency, credit, liquidity risk, the diversification of business and the economic growth have effect on bank's profitability, both on ROAE and ROAA. They also found positive affect of competition on bank's profitability. Albulescu and Ionescu (2018) conducted a study in which they have focused on the internal determinants of the banks' profitability in South and Central American countries and performed panel data analysis. They found that the liquidity, bank capitalization and interest rate margins have positive impact on the profitability of the banks, while the non-interest expense and nonperforming loans have a negative impact on profitability.
Hence, we propose that

H3= Liquidity has impact on ROA of Conventional Banks

2.2.4 Relationship of Size and bank's performance

Boyd and Runkle (1993) indicated that the size of a bank is frequently connected with the idea of economies of scale. It is clarified in "Economic Theory" that if an industry is exposed to economies of scale, the firm could be increasingly proficient to deliver at low cost. It is normal that bank size or economies of scale is identified positively with the profitability. To contrast large banks and little banks, large banks are expected to appreciate economies of scale, they can deliver huge number of items economically and productively. In this manner, huge banks are ready to produce higher rate of return as compare to little banks. Furthermore, Antoun, Coskun, and Georgiezski (2018) conducted a study to investigate the industry-specific, bank-specific, and macroeconomic determinants of the financial performance of banks in Eastern and Central European Countries over the period 2009-2014. They used fixed-effect panel regression method and found that the earnings of banks and asset quality are affected negatively by the size, and affected positively by the inflation and business mix. Akhtar, Ali and Sadaqat (2011) examined the profitability of commercial banks over the period 2006-2009 in Pakistan and found that NPLs ratio, gearing ratio and asset management have significant effect on the profitability of commercial banks.
So, we propose that

H4= Size has impact on ROA of Conventional Banks

2.2.5 Relationship of Capital Adequacy and bank's performance

Capital adequacy ratio is an essential proportion to decide the strength of the capital. It is determined as the ratio of equity to total assets of the Company (Abel & Le Roux, 2016)&(Anbar & Alper, 2011). A positive association was found between the capital adequacy and profitability of the commercial banks (Ebenezer, Omar, & Kamil, 2017). Alshatti (2016) examined the basic determinants that influenced the profitability of the commercial banks over the period 2005-2014, by applying a balanced panel data set of 13 banks in Jordan. He found that the determinants of Capital adequacy, Leverage and Capitalization positively affect the productivity of banks as estimated by ROA. Furthermore, there is a positive outcome of Capitalization and Leverage when estimated by ROE. In the same way, Antoun et al. (2018) stated that liquidity and capital adequacy are negatively affected by size and positively affected by economic growth and bank concentration. The result analyzed that independent variables i.e. Funding Costing, Non-performing loans, Liquidity, and Administrative expenses negatively affected the ROA, while positively affected by Non-fund based services, GDP and Capital Adequacy (Nisar, Susheng, Jaleel, & Ke, 2015). Mohiuddin (2017) conducted a study in Bangladesh over the period of 2009-2012 and found that spread ratio, non-interest income and profit per employee have positive relationship, but operating expenses ratio and capital adequacy have considerable negative association with ROA.
So, we propose that

H5= Capital Adequacy has impact on ROA of Conventional Bank

Research Methodology and Conceptual Framework
3.1 Conceptual Framework

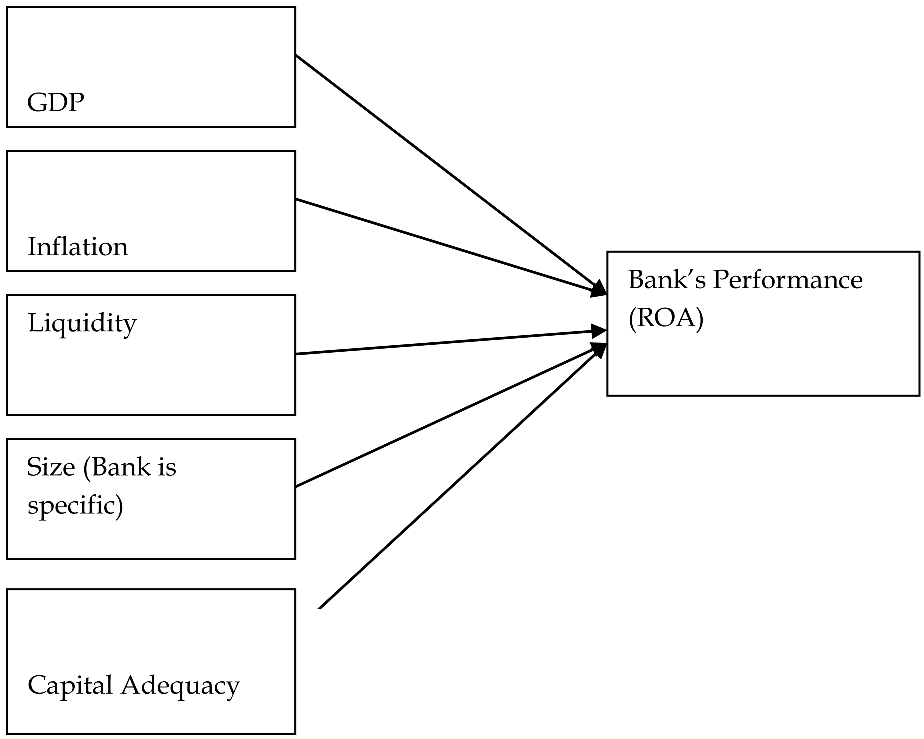

Figure 1. Conceptual Framework

3.2 Research Methodology

3.2.1 Research design

The research design of this study is quantitative based on post positivist paradigm. Independent variables of the study are inflation, GDP, Capital Adequacy, liquidity and firm size, whereas dependent variables are bank's performance which is represented as ROA i.e. Return on Assets.

3.2.2 Data Source

The information of monetary factors (dependent and independent factors) are gathered from auxiliary sources which incorporate State Bank of Pakistan Reports, distributed Final Reports or fiscal summaries of banks on their websites, Pakistan Statistics Bureau reports and Economic Survey of Pakistan reports.

3.2.3 Target Population

Currently, there are 22 commercial banks. Out of which, we have taken seventeen listed conventional banks into the sample for this study. They are:

Askari Commercial Bank Limited (AKBL)
National Bank of Pakistan (NBP)
MCB Bank Ltd (MCB)
Habib Bank Ltd (HBL)
Habib Metro Bank Ltd (HMB)
Summit Bank (SMBL)
JS Bank Limited (JSBL)
Bank of Khyber Limited (BOK)
Faysal Bank Ltd (FABL)
SAMBA Bank Limited. (SBL)
Allied Bank Limited (ABL)

Bank Alfalah Limited (BAFL)
United Bank Limited (UBL)
Bank of Punjab Limited (BOP)
Bank Al Habib Limited (BAHL)
Soneri Bank Limited (SNBL)
Standard Chartered Bank (SCBPL)

3.2.4 Sample Size

The sample size consists of the panel data of seventeen conventional banks, over the period of five years, (2013-17). There were 85 observations for testing to make our research accurate.

3.2.5 Sampling Technique

The judgmental sample technique was used for gathering the data to test the hypothesis and in analyzing the data of conventional banks.

3.2.6 Research Model

Bank's Performance = Bo + B1GDP + B2INF + B3LQ+B4SZ+ B5CAR + σ

Where,

GDP = Gross Domestic Product
INF = Inflation
LQ = Liquidity of conventional banks
SZ = Size of conventional banks
CAR= Capital Adequacy
σ = Error

3.2.7 Transformation of Variables

This study utilized the log variable change condition to satisfy the supposition of panel regression analysis. It is one of the significant solutions for dispose of heteroscedasticity issue in the data of panel analysis.

Data Analysis and Discussion

In this study, we used Eviews9 for statistical analysis, as it is robust software for analyzing the economic data. Furthermore, we used Tobin's Q to provide the investors more accurate and effective information for their decision-making process.

4.1 Data Analysis

4.1.1 Regression Analysis

Table 1. OLS Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.804569	2.214076	1.266700	0.2090
LNLQ	-0.484722	0.334741	-1.448051	0.1516
LNCAR	0.786242	0.297838	2.639833	0.0100
LNINF	0.389536	0.249881	1.558886	0.1230
LNGDP	-3.731574	1.157347	-3.224248	0.0018
LNASS	0.259757	0.072510	3.582385	0.0006
R-squared	0.455125	Mean dependent var		0.996588
Adjusted R-squared	0.420639	S.D. dependent var		0.710199
S.E. of regression	0.540573	Akaike info criterion		1.675599

Sum squared resid	23.08532	Schwarz criterion	1.848022
Log likelihood	-65.21298	Hannan-Quinn criter.	1.744953
F-statistic	13.19748	Durbin-Watson stat	0.749535
Prob(F-statistic)	0.000000		

Table 1 provides the OLS regression of the given model. In the given case, the value of probability (F-statistics) is > 0.05 which indicate that the overall model is right. The adjusted R^2 value showed that explanatory power is 42%. The t statistics and its probability show the significance of individual variable. According to the given analysis, the liquidity has insignificant impact on ROA ($p>0.05$). Capital adequacy ratio has significant positive affect on ROA ($t=2.6$. $p<0.05$). Inflation has insignificant impact on ROA ($t=1.5$, $p>0.05$). GDP is significantly but negatively associated with ROA ($t=-3.22$, $p<0.05$) and size has positively significant impact on ROA ($t=3.5$, $p<0.05$).

4.1.2 Hausman Test

Hausman test is used to find the best method between the random effect and fixed effect. The value of P is greater than 0.05. Hence, it is suggested that random effect model is more suitable than fixed effect model.

Table 2. Hausman Test

Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	5	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

4.1.3 Stock Performance (Tobin's Q)

In financial aspects, the greater value of Tobin's Q from 1 show that firm is worthier than its stated cost of assets. It shows that the profits made by the firm will be greater than the cost of firm's asset. Therefore, additional investment in the firm will be made sense. In another case, the lower value of Tobin's Q from 1 means that market value is lower than its stated value of assets which ultimately means that it will be cost more when replacing the firm's assets than the firm's actual worth of assets. Hence, it is better for firm to sell its assets rather than to put assets in use. The ideal state will be when the firm will be in equilibrium state when Tobin's Q ratio is equal to the one (Bond & Cummins, 2004).

Tobin's Q is usually calculated as Market value / Total Assets value and the common practice is also to assume equivalence of the liabilities market and book value yielding. So,

Tobin's Q = Equity market value+ Liabilities Book value/ Equity book value+ Liabilities Book value

Where, Equity market value= Market price per share* total number of shares

And Equity book value= Total Assets-Total liabilities

4.1.4 Discriminate Zone

Tobin's Q>1 explains that the stock is overvalued. It shows that stock is expensive as compare to the cost of assets.

Tobin's Q<1 explains that the stock is undervalued. It shows that market value is less than the cost of assets.

Tobin's Q=1 denotes fairness of stock value. Hence, market value is reflected exclusively as the cost of assets.

4.2 Discussions

4.2.1 Relationship of Liquidity and bank's performance

This study found an insignificant negative effect of liquidity on ROA. Results are consistent with various studies (Eichengreen & Gibson, 2001 ; Bourke, 1989 Molyneux & Thornton, 1992 &Goddard,

Molyneux, & Wilson, 2004). Similarly, Idris et al. (2011) analyzed the determinants of the profitability of nine Islamic banking institutions in Malaysia. The researchers found no association between the liquidity and the profitability of Malaysian banks. On the other hand , the result is found inconsistent with the findings of Haron (2004) that empirically validate a positive relationship between liquidity and profitability. According to Eichengreen and Gibson (2001), we might expect the greater profitability with the tied up of smaller amount of funds in liquid investments. Therefore, it is extremely easy to understand the inverse relationship association between the liquidity and profitability.

4.2.2 Relationship of Size and bank's performance

This study found that bank size has significant positive impact on profitability. The research findings of (Wasiuzzaman & Tarmizi, 2010 ; Bashir, 2003) was found consistent with the significant positive affect on profitability of banks. However, the research conducted by (Pasiouras & Kosmidou, 2007 ; Hassan Al-Tamimi, 2006 ; Srairi, 2010 &Athanasoglou, Brissimis, & Delis, 2008) provide inconsistent results.

4.2.3 Relationship of capital adequacy ratio and bank's performance

This study found that capital adequacy ratio has positive and significant impact on profitability. Capital adequacy play a vital role in the financial institutions of developing countries, because it provides more strength and increase safety for depositors in bad macroeconomic circumstances (Sufian, 2009 ;Trujillo-Ponce, 2013 ; Anbar & Alper, 2011). If more assets are created with the capital, interest expense will be decrease and profitability will be increase(Molyneux & Thornton, 1992). The results are widely supported and consistent with previous studies that banks become more stable, profitable and are able to deal with financial stresses and losses (Sufian, 2009; ; Trujillo-Ponce, 2013 ; Athanasoglou Panayiotis, 2008 ; Anbar & Alper, 2011 ; Zhang & Daly, 2013).

4.2.4 Relationship of GDP and bank's performance

The study found that GDP has significant negative impact on the profitability of conventional banks of Pakistan. Pakistan is suffering from various economic crisis. Therefore, much time is needed to decrease the shocks of the economy. Therefore, the results exhibit the negative impact of GDP on profitability. Also, we have seen that there is not much variation found in Gross Domestic Product (GDP) in the last ten years. Therefore, it is negatively associated to their profitability. The result is found consistent with the research conclusion of the study conducted by Sufian (2011).

4.2.5 Tobin's Q results

According to the calculations of Tobin's Q, it is found that the Tobin's Q value of banks AKBL, NBP, HBL, HMB, SMBL, JSBL, BOK, ABL, UBL, BAHL, SNBL is increasing gradually and moving from under value to equilibrium and approximately nearer to one. The ratio of MCB bank is devalued in the years 2014-2017 but increased in the year 2018. Ratio of bank SCBPL is undervalued in trending years but increasing gradually. The ratios of banks FABL, BOP, BAFL decreasing gradually in years of analysis, but nearer to one. The ratio of bank SBL is drastically devaluing in year's analysis. The stock is going from overvalue towards under value which shows bad situation for this bank. It is to be considered that the average value of Tobin's Q of many banks is in equilibrium position. The investors must look towards certain stock market conditions and can sale the shares of banks whose prices are undervalued.

5. Conclusion & Recommendations

The purpose of this study is to analyze the impact of macroeconomic and financial indicators on determinants of profitability of conventional banks in Pakistan. This study is an endeavor to assist the investors by providing them information on the current stock market situation through which they can invest in the future or sells shares from the unwanted banks. The study shows the stock value of most conventional banks is moving from undervalue to overvalue. Hence, the Government should take the proper initiatives to enhance the confidence of investors towards the stock market. Researchers can expand this research by analyzing the impact of financial and economic indicators on profitability on Islamic banking. Furthermore, they can include more variables to analyze their effect on profitability of the banking sector. The researchers can also calculate the Tobin's Q ratio by taking Islamic banks of Pakistan.

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Appendices

Data of Conventional Banks of Pakistan (2014-2018)

Banks	Year	ROA %	LQ %	Size	CAR	INF	GDP
AKBL	2014	0.95	43.99	447,083,000,000	13.03	2.9	4.6
AKBL	2015	1.03	46.16	535,867,000,000	12.51	4.5	4.7
AKBL	2016	0.9	49.74	619,139,000,000	12.5	8.6	5.5
AKBL	2017	0.83	49.2	656,708,000,000	12.09	7.4	5.7
AKBL	2018	0.65	59.81	706,532,000,000	12.51	3.9	5.4
NBP	2014	1.03	50.81	1,543,054,000,000	18.17	2.9	4.6
NBP	2015	1.18	40.38	1,706,361,000,000	17.59	4.5	4.7
NBP	2016	1.24	40.27	2,008,855,000,000	16.54	8.6	5.5
NBP	2017	1.05	42.83	2,505,321,000,000	15.97	7.4	5.7
NBP	2018	0.78	46.04	2,798,566,000,000	18.05	3.9	5.4
MCB	2014	2.78	44.1	934,631,000,000	20.41	2.9	4.6
MCB	2015	2.63	43.65	1,004,410,000,000	19.43	4.5	4.7
MCB	2016	2.16	44.55	1,072,365,000,000	19.33	8.6	5.5
MCB	2017	1.86	48.46	1,343,238,000,000	16.44	7.4	5.7
MCB	2018	1.5	48	1,498,130,000,000	18	3.9	5.4
HBL	2014	1.8	43.7	1,864,618,000,000	16.2	2.9	4.6
HBL	2015	1.7	43.2	2,218,433,000,000	17	4.5	4.7
HBL	2016	1.4	43.3	2,519,077,000,000	15.5	8.6	5.5
HBL	2017	0.3	46.1	2,696,218,000,000	15.96	7.4	5.7
HBL	2018	0.4	53.9	3,025,853,000,000	16.18	3.9	5.4
HMB	2014	1.2	42.16	409,894,000,000	17.39	2.9	4.6
HMB	2015	1.52	32.94	502,433,000,000	18.35	4.5	4.7
HMB	2016	1.13	33.25	538,007,000,000	18.34	8.6	5.5
HMB	2017	0.83	34.3	660,666,000,000	17.36	7.4	5.7
HMB	2018	0.91	41.7	673,396,000,000	16	3.9	5.4

SMBL	2014	0.15	63.1	148,457,000,000	12.22	2.9	4.6
SMBL	2015	0.12	58.87	188,420,000,000	19.8	4.5	4.7
SMBL	2016	-1.01	55.89	215,022,000,000	10.1	8.6	5.5
SMBL	2017	-0.49	58.69	233,050,000,000	5.01	7.4	5.7
SMBL	2018	-1.64	61.19	199,951,000,000	19	3.9	5.4
JSBL	2014	0.59	57.41	176,717,000,000	16.73	2.9	4.6
JSBL	2015	1.03	54.05	218,476,000,000	15.23	4.5	4.7
JSBL	2016	0.86	41.48	267,444,000,000	15.65	8.6	5.5
JSBL	2017	0.3	63.48	391,479,000,000	12.77	7.4	5.7
JSBL	2018	0.13	78.4	456,754,000,000	12.8	3.9	5.4
BOK	2014	1.03	43.4	126,106,000,000	22.65	2.9	4.6
BOK	2015	1.15	31.07	155,159,000,000	23.75	4.5	4.7
BOK	2016	0.97	20.15	206,400,000,000	21.34	8.6	5.5
BOK	2017	0.73	52.35	245,132,000,000	20	7.4	5.7
BOK	2018	0.2	55.5	223,095,000,000	12.28	3.9	5.4
FABL	2014	0.67	66.25	388,126,000,000	12.22	2.9	4.6
FABL	2015	1.03	63.25	430,073,000,000	14.41	4.5	4.7
FABL	2016	0.98	61.1	452,022,000,000	14.62	8.6	5.5
FABL	2017	0.96	61.35	494,934,000,000	15.9	7.4	5.7
FABL	2018	0.88	67.6	599,914,000,000	16.72	3.9	5.4
SBL	2014	0.5	68.9	50,581,000,000	9.14	2.9	4.6
SBL	2015	0.6	62.3	80,166,000,000	13.84	4.5	4.7
SBL	2016	0.6	57.2	103,100,000,000	10.67	8.6	5.5
SBL	2017	0.6	73.2	118,224,000,000	10.94	7.4	5.7
SBL	2018	0.6	82.2	122,765,000,000	10.92	3.9	5.4
ABL	2014	1.78	45.82	842,269,000,000	19.88	2.9	4.6
ABL	2015	1.52	43.78	991,665,000,000	21	4.5	4.7
ABL	2016	1.34	41.02	1,069,615,000,000	20.88	8.6	5.5
ABL	2017	1.01	42.09	1,249,665,000,000	22.38	7.4	5.7
ABL	2018	0.95	44.52	1,350,606,000,000	22.05	3.9	5.4
UBL	2014	2.1	46.2	1,111,414,000,000	13.9	2.9	4.6
UBL	2015	2	41.3	1,400,651,000,000	14.68	4.5	4.7
UBL	2016	1.8	42.1	1,600,632,000,000	14.88	8.6	5.5
UBL	2017	1.4	46.4	2,032,934,000,000	15.11	7.4	5.7
UBL	2018	0.8	48.7	1,889,599,000,000	16.98	3.9	5.4
BOP	2014	0.66	49.75	420,370,000,000	10.21	2.9	4.6
BOP	2015	1.01	58.51	472,284,000,000	10.49	4.5	4.7
BOP	2016	0.88	57.82	547,424,000,000	12.28	8.6	5.5
BOP	2017	-0.5	53.16	657,737,000,000	9.67	7.4	5.7
BOP	2018	1.05	64.11	714,380,000,000	13.01	3.9	5.4
BAFL	2014	0.83	48.15	755,902,000,000	12.75	2.9	4.6
BAFL	2015	0.93	52.19	918,404,000,000	13.27	4.5	4.7

BAFL	2016	0.88	59.08	929,645,000,000	13.18	8.6	5.5
BAFL	2017	0.87	62.11	998,828,000,000	13.39	7.4	5.7
BAFL	2018	1.11	71.36	1,006,218,000,000	14.95	3.9	5.4
BAHL	2014	1.09	40.71	579,394,000,000	14.89	2.9	4.6
BAHL	2015	1.15	40.15	639,973,000,000	13.75	4.5	4.7
BAHL	2016	1.05	44.75	768,018,000,000	14.18	8.6	5.5
BAHL	2017	0.9	49.06	944,134,000,000	13.87	7.4	5.7
BAHL	2018	0.8	60	1,048,239,000,000	13.52	3.9	5.4
SNBL	2014	0.81	66.25	216,473,000,000	12.5	2.9	4.6
SNBL	2015	0.94	60.59	255,655,000,000	15.39	4.5	4.7
SNBL	2016	0.7	59.7	281,805,000,000	14.12	8.6	5.5
SNBL	2017	0.55	72.28	325,219,000,000	12.27	7.4	5.7
SNBL	2018	0.5	71.07	382,498,000,000	14.7	3.9	5.4
SCBPL	2014	2.4	42.22	409,568,000,000	18.91	2.9	4.6
SCBPL	2015	2.2	33.26	447,348,000,000	20.32	4.5	4.7
SCBPL	2016	2.1	31.17	474,752,000,000	21.04	8.6	5.5
SCBPL	2017	1.7	36.45	519,832,000,000	19.27	7.4	5.7
SCBPL	2018	2.1	39.9	576,081,000,000	19.09	3.9	5.4

Calculation of Tobin's Q ratio

Banks	Year	value per share	No. of shares	Equity Market Value	Total Assets	Total Liabilities	Equity book value	Tobin's Q ratio
AKBL	2014	23.07	6,065,000	139919550	447,083,000,000	423,375,000,000	23,708,000,000	0.043346337
AKBL	2015	21.74	1,762,000	38305880	535,867,000,000	509,014,000,000	26,853,000,000	0.04599816
AKBL	2016	24.95	1,455,000	36302250	619,139,000,000	586,562,000,000	32,577,000,000	0.04008016
AKBL	2017	19.31	307,500	5937825	656,708,000,000	624,273,000,000	32,435,000,000	0.051786639
AKBL	2018	23.92	37,000	885040	706,532,000,000	673,023,000,000	33,509,000,000	0.04180602
NBP	2014	69.46	3,303,000	229426380	1,543,054,000,000	1,364,725,000,000	178,329,000,000	0.014396775
NBP	2015	54.04	99,000	5349960	1,706,361,000,000	1,538,010,000,000	168,351,000,000	0.018504811
NBP	2016	74.89	1,546,500	115817385	2,008,855,000,000	1,832,122,000,000	176,733,000,000	0.013352918
NBP	2017	48.56	2,796,500	135798040	2,505,321,000,000	2,329,939,000,000	175,382,000,000	0.020593081
NBP	2018	42.03	5,721,500	240474645	2,798,566,000,000	2,591,698,000,000	206,868,000,000	0.023792529
MCB	2014	305.6	108,000	33004800	934,631,000,000	804,527,000,000	130,104,000,000	0.003272251
MCB	2015	216.85	82,400	17868440	1,004,410,000,000	866,608,000,000	137,802,000,000	0.004611483
MCB	2016	237.82	387,500	92155250	1,072,365,000,000	930,739,000,000	141,626,000,000	0.004204861
MCB	2017	212.32	620,700	131787024	1,343,238,000,000	1,189,672,000,000	153,566,000,000	0.004709872
MCB	2018	193.57	1,360,700	263390699	1,498,130,000,000	1,348,852,000,000	149,278,000,000	0.00516609
HBL	2014	212.26	28,700	6091862	1,864,618,000,000	1,695,022,000,000	169,596,000,000	0.004711203
HBL	2015	200.12	779,200	155933504	2,218,433,000,000	2,035,802,000,000	182,631,000,000	0.004997002
HBL	2016	273.25	859,300	234803725	2,519,077,000,000	2,322,808,000,000	196,269,000,000	0.003659652
HBL	2017	167.09	1,029,400	172002446	2,696,218,000,000	2,507,467,000,000	188,751,000,000	0.005984799
HBL	2018	120.45	2,761,000	332562450	3,025,853,000,000	2,826,600,000,000	199,253,000,000	0.0083022
HMB	2014	37.3	794,000	29616200	409,894,000,000	362,629,000,000	47,265,000,000	0.026809651
HMB	2015	30.47	235,500	7175685	502,433,000,000	453,051,000,000	49,382,000,000	0.032819166

HMB	2016	37	40,500	1498500	538,007,000,000	486,935,000,000	51,072,000,000	0.027027027
HMB	2017	34.5	39,500	1362750	660,666,000,000	620,167,000,000	40,499,000,000	0.028985507
HMB	2018	45.81	3,034,500	139010445	673,396,000,000	636,393,000,000	37,003,000,000	0.021829295
SMBL	2014	4.45	1,215,500	5408975	148,457,000,000	136,095,000,000	12,362,000,000	0.224719101
SMBL	2015	3.93	105,500	414615	188,420,000,000	176,462,000,000	11,958,000,000	0.254452926
SMBL	2016	4.4	3,195,000	14058000	215,022,000,000	202,350,000,000	12,672,000,000	0.227272727
SMBL	2017	2.77	6,503,000	18013310	233,050,000,000	222,015,000,000	11,035,000,000	0.36101083
SMBL	2018	0.82	39,500	32390	199,951,000,000	189,147,000,000	10,804,000,000	1.219512195
JSBL	2014	7.14	134,500	960330	176,717,000,000	163,637,000,000	13,080,000,000	0.140056022
JSBL	2015	7.75	12,500	96875	218,476,000,000	202,508,000,000	15,968,000,000	0.129032258
JSBL	2016	10.81	7,006,000	75734860	267,444,000,000	250,794,000,000	16,650,000,000	0.092506938
JSBL	2017	7.52	743,500	5591120	391,479,000,000	374,810,000,000	16,669,000,000	0.132978723
JSBL	2018	7.37	290,000	2137300	456,754,000,000	441,137,000,000	15,617,000,000	0.13568521
BOK	2014	9.85	26,500	261025	126,106,000,000	111,186,000,000	14,920,000,000	0.101522843
BOK	2015	11.26	75,000	844500	155,159,000,000	139,241,000,000	15,918,000,000	0.088809947
BOK	2016	16.55	43,000	711650	206,400,000,000	190,257,000,000	16,143,000,000	0.060422961
BOK	2017	13.5	2,500	33750	245,132,000,000	229,734,000,000	15,398,000,000	0.074074074
BOK	2018	12.95	24,500	317275	223,095,000,000	211,390,000,000	11,705,000,000	0.077220077
FABL	2014	18.2	3,836,500	69824300	388,126,000,000	361,825,000,000	26,301,000,000	0.054945055
FABL	2015	15.43	117,000	1805310	430,073,000,000	399,720,000,000	30,353,000,000	0.064808814
FABL	2016	21.78	1,088,500	23707530	452,022,000,000	417,015,000,000	35,007,000,000	0.045913682
FABL	2017	21.26	7,500	159450	494,934,000,000	455,688,000,000	39,246,000,000	0.047036689
FABL	2018	24.07	3,429,500	82548065	599,914,000,000	556,416,000,000	43,498,000,000	0.041545492
SBL	2014	7	196,000	1372000	50,581,000,000	109,981,000,000	-59,400,000,000	0.142857143
SBL	2015	6	10,000	60000	80,166,000,000	105,515,000,000	-25,349,000,000	0.166666667
SBL	2016	7.26	1,500	10890	103,100,000,000	90,780,000,000	12,320,000,000	0.137741047
SBL	2017	6.96	5,000	34800	118,224,000,000	68,322,000,000	49,902,000,000	0.143678161
SBL	2018	8.04	34,500	277380	122,765,000,000	39,326,000,000	83,439,000,000	0.124378109
ABL	2014	113.58	1,261,400	143269812	842,269,000,000	761,379,000,000	80,890,000,000	0.008804367
ABL	2015	94.26	16,000	1508160	991,665,000,000	902,409,000,000	89,256,000,000	0.010608954
ABL	2016	119.21	43,000	5126030	1,069,615,000,000	968,941,000,000	100,674,000,000	0.008388558
ABL	2017	84.98	1,136,000	96537280	1,249,665,000,000	1,142,949,000,000	106,716,000,000	0.011767475
ABL	2018	107.47	524,000	56314280	1,350,606,000,000	1,243,301,000,000	107,305,000,000	0.009304922
UBL	2014	176.71	1,740,500	307563755	1,111,414,000,000	985,898,000,000	125,516,000,000	0.005658989
UBL	2015	154.95	809,800	125478510	1,400,651,000,000	1,258,516,000,000	142,135,000,000	0.006453695
UBL	2016	238.9	882,900	210924810	1,600,632,000,000	1,448,845,000,000	151,787,000,000	0.004185852
UBL	2017	187.97	1,329,800	249962506	2,032,934,000,000	1,873,627,000,000	159,307,000,000	0.005319998
UBL	2018	122.64	12,632,400	1549237536	1,889,599,000,000	1,738,329,000,000	151,270,000,000	0.008153947
BOP	2014	10.95	7,556,000	82738200	420,370,000,000	401,043,000,000	19,327,000,000	0.091324201
BOP	2015	9.21	2,824,000	26009040	472,284,000,000	449,605,000,000	22,679,000,000	0.108577633
BOP	2016	17.65	38,084,500	672191425	547,424,000,000	519,569,000,000	27,855,000,000	0.056657224
BOP	2017	8.24	6,655,000	54837200	657,737,000,000	628,005,000,000	29,732,000,000	0.121359223
BOP	2018	11.97	10,006,500	119777805	714,380,000,000	676,659,000,000	37,721,000,000	0.083542189
BAFL	2014	34.88	8,390,500	292660640	755,902,000,000	711,083,000,000	44,819,000,000	0.028669725
BAFL	2015	28.82	441,000	12709620	918,404,000,000	865,051,000,000	53,353,000,000	0.034698126
BAFL	2016	37.96	2,534,500	96209620	929,645,000,000	869,520,000,000	60,125,000,000	0.026343519
BAFL	2017	42.5	1,983,500	84298750	998,828,000,000	933,028,000,000	65,800,000,000	0.023529412

BAFL	2018	40.59	11,564,000	469382760	1,006,218,000,000	930,571,000,000	75,647,000,000	0.02463661
BAHL	2014	48.55	1,377,500	66877625	579,394,000,000	546,283,000,000	33,111,000,000	0.020597322
BAHL	2015	41.6	365,500	15204800	639,973,000,000	601,832,000,000	38,141,000,000	0.024038462
BAHL	2016	58.99	616,000	36337840	768,018,000,000	725,504,000,000	42,514,000,000	0.016952026
BAHL	2017	58.36	38,000	2217680	944,134,000,000	898,257,000,000	45,877,000,000	0.017135024
BAHL	2018	68.79	3,211,500	220919085	1,048,239,000,000	998,687,000,000	49,552,000,000	0.014536997
SNBL	2014	12.33	714,000	8803620	216,473,000,000	199,434,000,000	17,039,000,000	0.081103001
SNBL	2015	15.13	236,500	3578245	255,655,000,000	237,463,000,000	18,192,000,000	0.066093853
SNBL	2016	17.65	412,500	7280625	281,805,000,000	263,516,000,000	18,289,000,000	0.056657224
SNBL	2017	13.4	8,500	113900	325,219,000,000	306,714,000,000	18,505,000,000	0.074626866
SNBL	2018	12.67	127,000	1609090	382,498,000,000	364,509,000,000	17,989,000,000	0.078926598
SCBPL	2014	23.6	2,000	47200	409,568,000,000	348,852,000,000	60,716,000,000	0.042372881
SCBPL	2015	21.9	3,500	76650	447,348,000,000	385,397,000,000	61,951,000,000	0.0456621
SCBPL	2016	25.25	36,000	909000	474,752,000,000	412,049,000,000	62,703,000,000	0.03960396
SCBPL	2017	23.85	500	11925	519,832,000,000	456,895,000,000	62,937,000,000	0.041928721
SCBPL	2018	24.12	2,500	60300	576,081,000,000	508,842,000,000	67,239,000,000	0.04145937