RELATIONSHIP BETWEEN LOAN GROWTH AND BANK VALUATION

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PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE IN FINANCE

In the Master of Science in Finance Program
of the
Faculty
of
Business Administration

SIMON FRASER UNIVERSITY

Term 2019 Fall

Approval

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Degree: **Master of Science in Finance**

Title of Project: **Relationship Between Loan Growth and Bank Valuation**

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Abstract

This paper examines the relationship between loan growth and bank valuation. The sample consists of data on publicly traded banks in the US from 2004 to 2017. Using the whole sample, we find that faster loan growth is associated with higher bank valuations. Then, we divide the whole sample into three periods, and find that this result holds for every period. Finally, we divide the whole sample by both time periods and bank size. We find that, for the first two periods, faster loan growth is associated with higher valuations at small and medium banks, but not at large banks. For the last period, however, faster loan growth is associated with higher valuations at large banks, but not at small and medium banks. We discuss the possible explanations for our findings.

Keywords: Bank; Loan growth; Valuation

Acknowledgements

We want to express our gratitude to all those who helped us during the writing of this thesis. Our deepest gratitude goes first and foremost to Professor Jijun Niu, our supervisor, for his constant encouragement and guidance. He has walked us through all the stages of the writing of this thesis. Without his consistent and illuminating instruction, this thesis could not have reached its present form.

Last, our thanks would go to our beloved families for their thoughtful considerations and high confidence in us all through these years. We also owe our sincere gratitude to our friends and our classmates who gave us their help and time listening to us and helping us work out our problems during the challenging course of the thesis.

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1: Introduction

The action of lending loans to customers represents one of the significant functions of banks and is an integral part of the theories that explain why banks exist (Diamond, 1984; Bhattacharya and Thakor, 1993). Loans make a large part of a typical bank's assets. Comparing with securities held by banks, bank loans normally have higher interest rates. Thus, given the overall information and importance of bank loans, it is reasonable to expect that, if a bank can grow its loan portfolio at a faster pace, its valuation will increase.

However, there is also risks associated with faster loan growth. For example, if a bank lowers its credit standards, it can grow its loan portfolio, but it can also have higher credit losses in the future. Indeed, the losses resulting from faster loan growth may outweigh the benefits. In such an situation, bank valuation will drop with an increase in loan growth.

This paper is based on Niu (2016), who examines the relationship between loan growth and banks valuation using a sample of banks from 2002 to 2013. In this paper, we expand the sample period to more recent years when the market is back to a stable stage after the financial crisis. Specifically, we use annual observations on US banks from 2004 to 2017. Graph 1 shows the number of observations for each year. We find that the number of observations gradually drops over time. We use Tobin's q and market to book ratio as our valuation measures. In all regressions, we control for time fixed effects.

Using the whole sample, we find that loan growth is positively associated with banks valuation. This result holds when we replace loan growth with abnormal loan growth. The result also holds after we add two more control variables (cost-income ratio and loan loss provision) to the regression.

The relations between many bank characteristics and banks valuation have changed during the crisis from 2007 to 2009 (Calomiris and Nissim, 2014). So, we divide the whole-time horizon into three different periods: the prosperous period before the financial crisis (year 2002-year 2006), the crisis and recovery period (year 2007-year 2012) and the stable period after the crisis (year 2013-year 2017). We then separately run regressions for each period. We find that, for all periods, the faster the loan growth, the higher the bank valuation.

Small and large banks differ in many ways (Niu, 2016). To check whether the relation between loan growth and bank valuation is the same for banks of different size, we divide the sample into three groups by bank size. We then run separately regressions for each size group. We find that, for small and medium banks, loan growth is associated with higher valuation. For large banks, however, there is no such a relation.

Finally, we divide the sample by both time and bank size. We find that, for the first two periods, faster loan growth is associated with higher valuations at small and medium banks, but not at large banks. For the last period, however, faster loan growth is associated with higher valuations at large banks, but not at small and medium banks. We provide several possible explanations for our findings.

The rest of the paper is organized as follows. Section 2 outlines some theoretical considerations. Section 3 describes the data. Section 4 presents the main results and robustness checks. Section 5 gives the conclusion.

2: Theoretical Considerations

There are several reasons to believe that bank valuation is positively correlated with loan growth.

First, when the economy expands, both companies and individuals have higher demand for bank loans. This is because, under favourable economic conditions, companies borrow more to achieve investments, and individuals borrow more to purchase consumption goods. Moreover, the improvement of economic conditions can bring more income and more net worth to the borrowers, thereby increasing their debt capacity. Therefore, the expansion of loan portfolio will bring more profits to banks, and thus increase their valuation.

Second, a large literature suggests that banks will reduce loans when they realize that they are at risk of violating capital requirements. During the financial crisis of 2007 to 2009, capital had a positive impact on bank lending (Carlson, Shan, and Warusawitharana 2013). Moreover, capital helps to increase the market share of small banks all the time, and of medium and large banks during the banking crisis (Berger and Bouwman 2013). Therefore, during crisis times, a bank will achieve faster loan growth if it has higher capital, and so its valuation should be higher.

Finally, the ratings from bank regulators can also affect a bank's loan growth (Kupiec et al. 2014). Regulators rate banks based on their security and robustness, and banks with lower ratings are subject to certain constraints and this affect their ability to

lend. The impact of regulatory ratings on loan growth may be specific to particular periods and loan categories (Curry, Fissel, and Ramirez, 2008). Therefore, all else being equal, if a bank receives a higher regulatory rating, it will achieve faster loan growth, and thus its valuation will be higher.

Faster loan growth, however, may sometimes result in lower banks valuation. Rajan (1994) argues that bank managers may manipulate the bank's current income. For example, a bank may its lower mortgage requirements and provide loans to borrowers with low credit scores. In so doing, the bank can earn interest income on these loans. Moreover, because borrowers rarely defaulted in the first year of getting a loan, the bank's loan losses will not increase initially. Therefore, the bank can increase its current earnings, but it may face higher loan losses in the future. This analysis suggests that a bank with weak current earnings may loosen its credit policy. Although this will generate faster loan growth, it will lower the banks valuation because it will face a higher risk of credit losses in the future.

Jensen (1986) analyzes the agency costs of free cash flow and argues that managers may invest beyond the optimal size in order to obtain more resources and compensation. If managers are not monitored, they may invest free cash flows into some low-return projects rather than returning the free cash flows to shareholders. The growth of loans can be seen as an investment by banks (Megginson et al., 1995; Houston & James, 1998). Therefore, the agency costs of free cash flows will cause a bank's loan to grow to a scale that exceeds the optimal size that maximums shareholder value.

Dell'Ariccia and Marquez (2006) propose a credit market model. In their model, banks have information of certain borrowers but no information about unknown

borrowers. Banks are able to raise credit standards to avoid financing borrowers who are rejected by other banks. However, when the proportion of unknown borrowers in the market increases, banks may loosen credit standards. This will lead to a deterioration in the bank's loan portfolio and a decrease in profits. Therefore, their model suggests a situation where loans grow faster but bank valuation is lower.

3: Sample and Variables

Our sample consists of annual observations on US banks. The accounting data come from the Federal Reserve's Y-9C reports, and the stock data come from the Center for Research in Security Prices (CRSP). Because our objective is to analyse the relationship between loan growth and banks valuation before, during, and after the financial crisis, the time horizon is from 2004 to 2017.

To facilitate a comparison with Niu (2016), we also use Tobin's q as the main measure to value banks. Tobin's q is calculated as the ratio of the market value of equity plus the book value of liabilities to the book value of assets. Also, we consider the market to book ratio as an alternative measure of banks valuation. The market to book ratio is the ratio of the market value of equity to the book value of equity (Caprio et al., 2007). Graphs 2 and 3 show the average of Tobin's q and the market to book ratio in each year, respectively. The graphs indicate that both Tobin's q and the market to book ratio rapidly dropped in 2007 and remained at low levels until 2013. In 2013, both Tobin's q and the market to book ratio significantly increased.

We choose variables following Niu (2016). The dependent variable is Tobin's q or market to book ratio. First, we include loan growth, which is the independent variable. Second, we control for size, which is the natural log of total assets. Third, we control for capital, which is the ratio of equity to total assets. Fourth, we control for loans, which is the ratio of net loans to total assets. Fifth, we control the deposits, which is the ratio of

total deposits to total liabilities. Finally, we control for the return on equity (ROE), which is the ratio of pre-tax profits to book value of equity.

Table 1 contains the definition of all the variables used in this paper. To deal with the outliers, for all the observations which are less than the 1% or larger than the 99% level, we use the value at the 1% or 99% level to replace the outliers.

Table 2 shows the summary statistics. The mean of Tobin's q is 1.046, and the mean of the market to book ratio is 1.49. The value of Tobin's q shows that the market value of the average bank has exceeded the book value of the bank by 4.6% over the whole sample period. Moreover, the mean of the market to book ratio is also larger than 1, and so we conclude that these two valuation measures indicate the same conclusion. For the average bank, loans account for 67.2% of assets, and deposits account for 74.9% of liabilities.

Graph 4 shows the average loan growth in each year. The loan growth decreased in the several years before the financial crisis. In 2009, it became negative. That is perhaps because at that time there was no strong demand for bank loans. Loan growth started to recover in 2012 and reached a stable level in 2014.

Table 3 shows the correlation matrix of the main variables. The correlation between loan growth and Tobin's q is positive and significant at the 1% level. However, correlation alone does not allow us to draw a strong conclusion, and so we estimate regressions.

4: Empirical Results

After the correlation test, in order to further explore the relationship between loan growth and banks valuation, we do the regression test for both Tobin's q and market to book ratio. Following Niu (2016), we estimate regressions using the Ordinary Least Square (OLS). And we control for time fixed effects in all regressions. We still use banks valuation as the dependent variable, loan growth as the independent variable and other variables are the control variables, the equation is

$$Tobin's\ q = \alpha + \beta_1 \cdot loan\ growth + \beta_2 \cdot size + \beta_3 \cdot capital + \beta_4 \cdot loans + \beta_5 \cdot deposits + \beta_6 \cdot ROE + \varepsilon$$

Table 4 shows the regression results. In column (1), the dependent variable is Tobin's q, and the coefficient on loan growth is 0.0201. It is positive and significant at the 1 percent level. This means that the faster the loan growth, the higher the Tobin's q. In this regression, for every percentage increase in loan growth, there will be an almost two basis points increase in Tobin's q.

In column (2), the dependent variable is the market to book ratio, and the coefficient on loan growth is 0.254, which means for every percentage of increase in loan growth, there will be about 25 basis points increase in the market to book ratio. Since the coefficient is also positive and significant at the 1% level, we conclude that loan growth has a positive relationship with the market to book ratio.

As regards the control variables, the coefficient on size is positive and significant. This is consistent with the notion that bank size can affect valuation through the economies of scale (Leaven and Levine, 2007). Also, the result of the regression shows that the capital is positively associated with both Tobin's q and the market to book ratio. The coefficient on loans is negative, which indicates that the larger the percent of loans, the lower the valuation of the bank.

To better compare with Niu (2016), in column (3), we also estimate the regression of Tobin's q on abnormal loan growth. Abnormal loan growth is equal to a bank's loan growth in a given year minus the median loan growth of all the banks in the same year (Foos et al.,2010; Amador et al., 2013). As in column (1), the coefficient on abnormal loan growth is positive and significant.

In column (4), we add additional controls to the regression. Specifically, we add two extra controls: cost-income ratio and loan loss provision. Cost-income ratio is the ratio of total non-interest expense to total operating income. Loan loss provision is the ratio of loan loss provision to net interest income. The result shows that after adding the additional controls, the coefficient on loan growth is still positive and significant at the 1% level, which means that the additional controls do not affect the relationship between loan growth and the banks valuation. Additionally, the cost-income ratio has a negative relationship with the valuation, while the coefficient on loan loss provision is not significant. Thus far, our results are similar to Niu (2016).

According to Calomiris and Nissim (2014), during the crisis period, the relationships between banks valuation and many bank characteristics have changed. So, it is reasonable to think that the relationship between loan growth and banks valuation may

change over time. To check the relationship between loan growth and banks valuation, we divide the time horizon into three periods. The prosperous period before the financial crisis (year 2002-year 2006), the crisis and subsequent recovery period (year 2007-year 2012), and the stable period after the crisis (year 2013-year 2017). We choose 2013 as the breakpoint because Basel 3 requires banks to increase their capital adequacy ratio from 4% to 4.5% from 2013. Having created the periods, we run the regressions for each period separately.

Table 5 and Table 6 are the regression results for Tobin's q and market to book ratio, respectively. Table 5, columns (1) shows the result for the period before the crisis. The coefficient on loan growth is positive and significant at the 5% level. In columns (2) and (3), the coefficient on loan growth is positive and significant at the 1% level. These results are consistent with Niu (2016) and our expectations.

Table 6 presents the regression results for the market to book ratio. The results are similar to those reported in table 5. Therefore, we conclude that, in each period, the faster the loan growth, the higher the bank valuation.

Beyond the time horizon, we still need to consider the effect of bank size. Banks of different size differ not only in the economies of scale but also many other dimensions. Therefore, similar to we did with the time horizon, we divide the sample based into three groups based on bank size. Small banks have total assets up to $1 billion, medium banks have total assets from $1 billion to $10 billion, and large banks have total assets exceeding $10 billion. Then we estimate the regressions for each group.

Table 7 presents the regression results with Tobin's q as the dependent variable. In columns (1) and (2), the coefficient on loan growth is positive and significant at the

1% level, which indicates that loan growth is positively associated with bank valuation at small and medium-size banks. However, in column (3), the coefficient is not significant, which indicates that such a relation does not exist at large banks.

Table 8 presents the regression results with the market to book ratio as the dependent variable. The results are similar to those in Table 7. These results indicate that loan growth has a positive association with bank valuation at small and medium-size banks, but there is no such an association at large banks. This conclusion is consistent with Niu (2016). This conclusion is also consistent with Zemel (2015), who finds that "loan growth will convey value-relevant information about small banks, but not about large banks."

As regards the control variable, size has a positive correlation with bank valuation at small and medium-size banks but a negative correlation with bank valuation at large banks. Niu (2016) argues that this is because small and medium banks do not have the same level of management difficulty. We think there is another possible explanation. The Basel Committee on Banking Supervision has imposed higher capital requirements and stricter regulations on large banks, and these can reduce bank risks but also negatively affect bank valuation.

To get an even better understanding of the relationship between loan growth and valuation, we jointly consider the effect of time and bank size. Tables 9 through11present the regression results with Tobin's q as the dependent variable for the period before, during, and after the financial crisis. Tables 12 through 14 present the regression results with the market to book ratio as the dependent variable.

We find that for the periods before and during the financial crisis, the results are qualitatively similar to those in previous tables. However, for the stable period after the crisis, the results are different. Specifically, for large banks, the coefficients on loan growth become positive and significant at the 1% level, while the coefficients on loan growth for small and medium-sized banks become insignificant. Thus, for large banks in the stable period after the crisis, the faster the loan growth, the higher the bank valuation. In contrast, for small and medium banks, there is no significant relation between loan growth and bank valuation.

There are several possible explanations for our findings. First, there is a positive correlation between loan growth and the banks valuation for small and medium-sized banks before 2013. From the perspective of investors, when a bank has positive loan growth, it means the bank has stable cash flows, and thus the bank can increase its market share and valuation. However, large banks pay more attention to securitization activity, and their principal strategy is not about loan growth (Niu, 2016). After the financial crisis, the Basel Committee on Banking Supervision increased the requirements for the Capital Adequacy Ratio and added some buffers (e.g., capital conservation buffer, count-cyclical buffer). For this reason and some others, large banks changed their investment strategy: They decreased their securitization rate and increased bond issuances. Since large banks usually have higher credit ratings, they can quickly sell their bonds at a reasonable price. Moreover, using the money from selling bonds, large banks increase their loans to borrowers and earn the spread between loan interest and coupon from the bond they issue.

Also, when borrowers obtain loans from a bank, they also hire the bank to manage assets. Thus, the bank can charge a management fee. Moreover, large banks have relatively more capital compared to small or medium banks, and they may thus charge lower interests on loans. Since large banks can offer loans with lower interests, and many large banks have relatively higher credit ratings, they can seize market share from small and medium banks. Thus, loan growth is positively associated with bank valuation at large banks in the stable period after the financial crisis.

5: Conclusion

In this paper, we analyze the relationship between loan growth and bank valuation. We use annual data from 2004 to 2017 and find that loan growth has a positive correlation with bank valuation. We also estimate regressions under different conditions. First, we divide the time horizon into three different periods and separately run the regressions; the results indicate that in all three periods loan growth is positively associated with bank valuation. Then, we divide banks into three size groups. In this case, we find that at small and medium banks, the conclusion is the same as before; however, at large banks, there is no such correlation. Finally, we combine the effect of time and bank size. We find that for the period before the crisis (2004-2006), and the period during the crisis and recovery period (2007-2012), faster loan growth is associated with higher valuation at small and medium-sized banks. For the stable period after the crisis (2013-2017), faster loan growth is associated with higher valuation at large banks. We provide several possible explanations for our findings.

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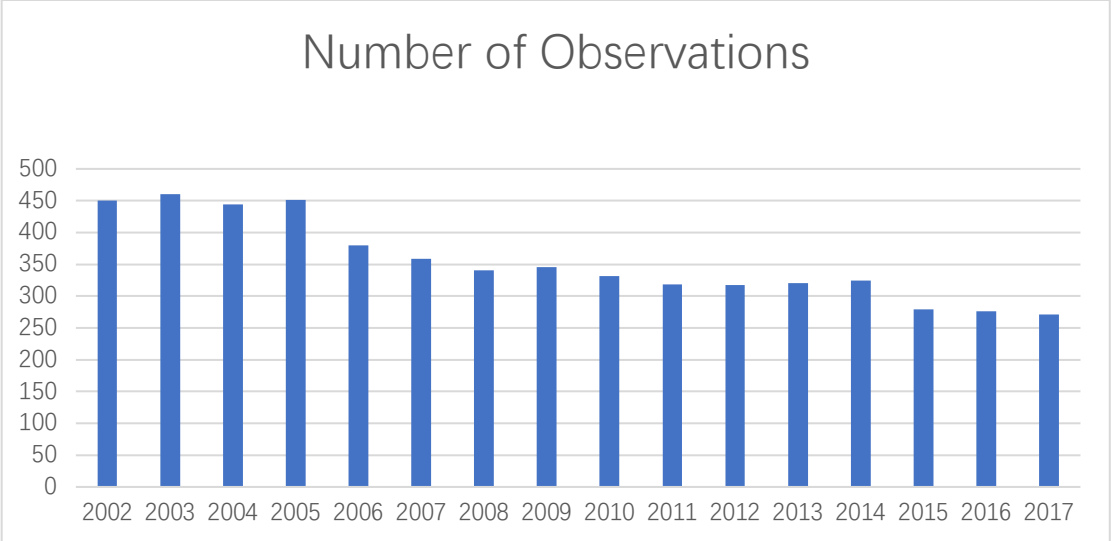
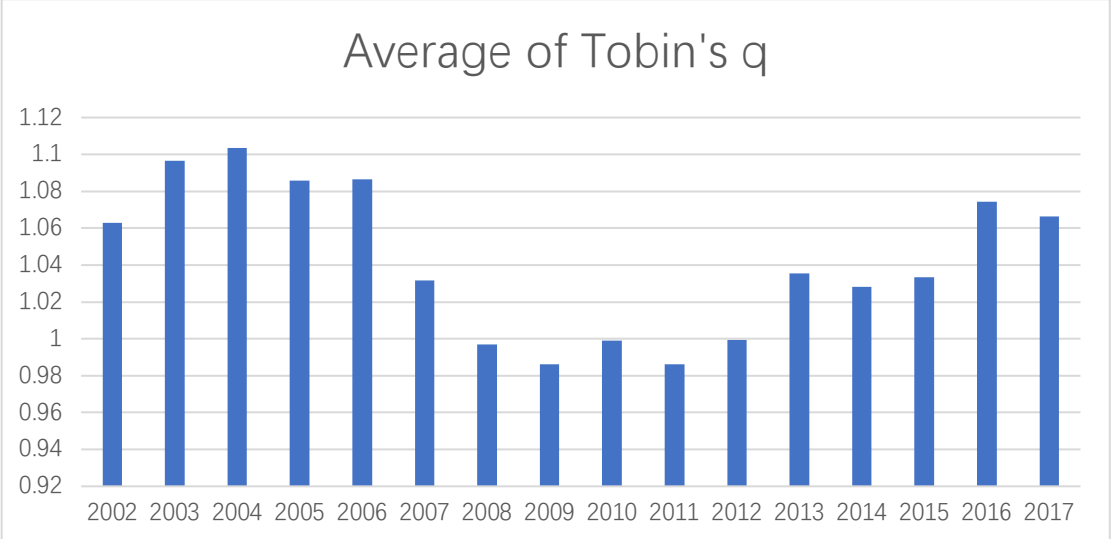
Appendices

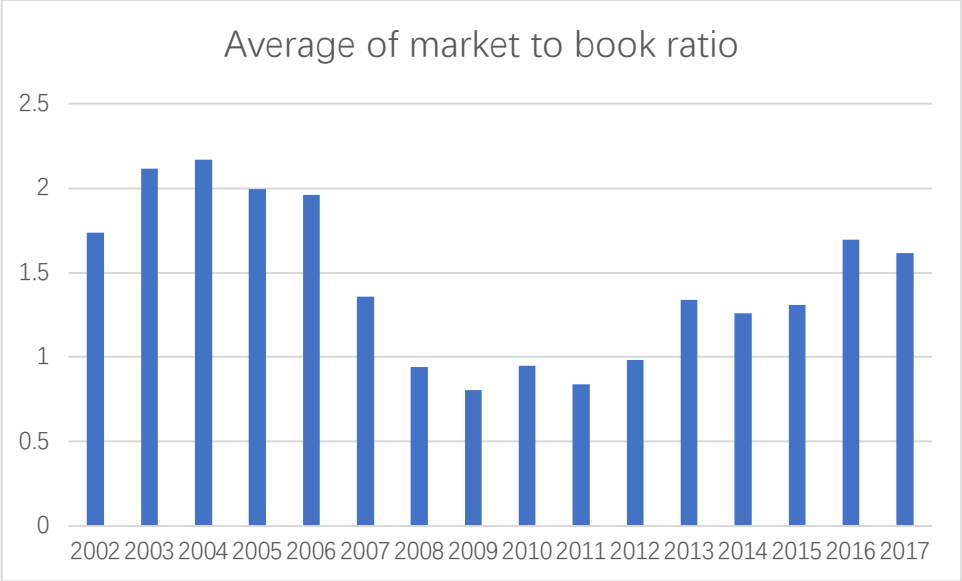
Graph 1



Graph 2



Graph 3



Graph 4

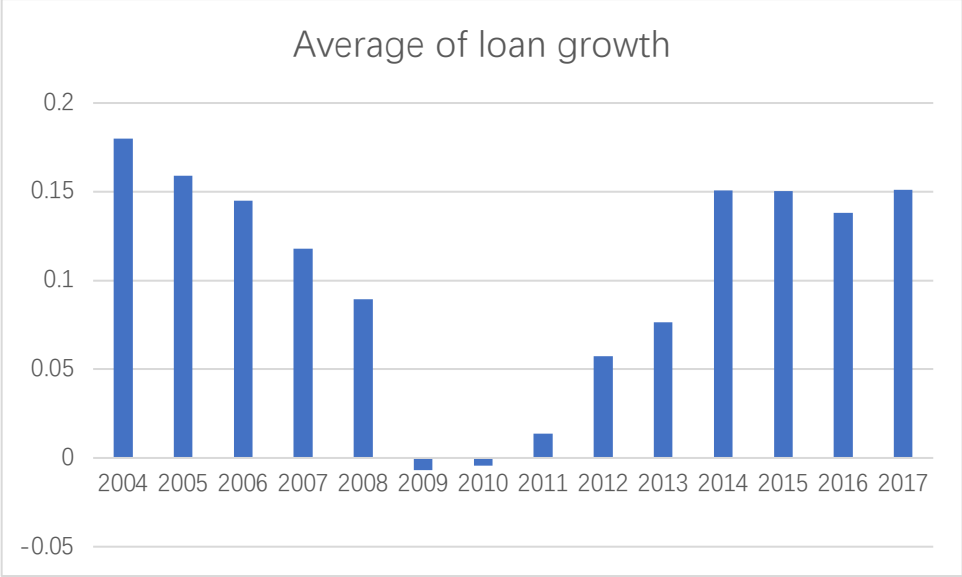


Table 1

Variable definitions:

Variable	Definition
Tobin's q	The ratio of the market value of equity plus the book value of liabilities to the book value of assets
Loan growth	The annually growth rate of total loans and leases
Size	The natural logarithm of total assets
Capital	The ratio of equity to total assets
Loans	The ratio of net loans to total assets
Deposits	The ratio of total deposits to total assets
Market-to-book ratio	The ratio of the market value of equity to the book value of equity
Abnormal loan growth	A bank's loan growth in a given year minus the median loan growth of all the banks in the same year
Return on equity	The ratio of net income to the book value of equity
Cost-income ratio	The ratio of total noninterest expense to total operating income
Loan loss provision	The ratio of loan loss provision to net interest income

Table 2

variable	mean	sd	p25	p50	p75	N
q	1.046	0.067	0.998	1.039	1.085	5667
mb	1.49	0.738	0.983	1.4	1.919	5667
lg	0.104	0.166	0.011	0.075	0.161	4949
size	21.724	1.623	20.573	21.349	22.519	5667
capital	0.098	0.027	0.081	0.095	0.112	5667
loans	0.672	0.131	0.612	0.69	0.758	5667
deposits	0.749	0.124	0.713	0.779	0.824	5667
roe	0.062	0.155	0.054	0.088	0.122	5667

Table 3

	Tobin's q	loan growth	size	capital	loans	deposits
Tobin's q	1					
loan growth	0.2834*	1				
size	0.1423*	-0.0212*	1			
capital	-0.0041*	-0.0165	0.0014*	1		
loans	-0.1295*	-0.0053	-0.0964*	-0.025	1	
deposits	-0.1002*	-0.0513*	-0.7018*	0.0045	0.5378*	1

Note: * indicates significance at the 1% level. Please see Table 1 for variable definitions

Table 4

VARIABLES	(1) q	(2) mb	(3) Abnormal loan growth	(4) Additional controls
lg	0.0201***	0.254***		0.071***
	(0.00471)	(0.0495)		(0.064)
abnormal loan growth			0.241***	
			(0.041)	
size	0.00490***	0.0639***	0.013***	0.004*
	(0.000549)	(0.00576)	(0.008)	(0.011)
capital	0.0646**	2.894***	0.381***	0.281***
	(0.0302)	(0.317)	(0.021)	(0.215)
loans	-0.0299***	-0.325***	-0.125***	-0.424***
	(0.00639)	(0.0671)	(0.103)	(0.427)
deposits	0.0275***	0.387***	0.314*	0.193**
	(0.00774)	(0.0813)	(0.097)	(0.452)
roe	0.0877***	1.245***		0.357**
	(0.00519)	(0.0545)		(0.427)
Cost-income ratio				-0.072***
				(0.011)
Loan loss provision				0.003
				(0.006)
Constant	0.974***	0.779***	0.982***	0.958***
	(0.0158)	(0.166)	(0.141)	(0.063)
Observations	4,949	4,949	4,949	4,949
R-squared	0.445	0.501	0.445	0.663

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5

VARIABLES	First time period q	Second time period q	Third time period q
lg	0.0105**	0.0265***	0.0319***
	(0.00717)	(0.00744)	(0.00760)
size	0.00779***	0.00221***	0.00114
	(0.000911)	(0.000804)	(0.000921)
capital	0.377***	-0.0189	0.126**
	(0.0512)	(0.0427)	(0.0502)
loans	-0.0263***	-0.0633***	-0.00998
	(0.0101)	(0.00976)	(0.0101)
deposits	0.0912***	-0.00801	-0.00472
	(0.0117)	(0.0114)	(0.0135)
roe	0.421***	0.0585***	0.196***
	(0.0198)	(0.00561)	(0.0163)
Constant	0.796***	1.081***	0.957***
	(0.0251)	(0.0232)	(0.0282)
Observations	1,633	2,285	1,698
R-squared	0.311	0.386	0.277

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6

VARIABLES	First time period mb	Second time period mb	Third time period mb
lg	0.214***	0.317***	0.301***
	(0.0807)	(0.0795)	(0.0729)
size	0.0752***	0.0426***	0.0216**
	(0.0103)	(0.00859)	(0.00883)
capital	-4.418***	-1.355***	-1.401***
	(0.576)	(0.457)	(0.481)
loans	-0.325***	-0.618***	-0.160*
	(0.114)	(0.104)	(0.0965)
deposits	0.836***	0.143	0.0511
	(0.132)	(0.121)	(0.130)
roe	4.784***	0.851***	2.188***
	(0.223)	(0.0600)	(0.157)
Constant	-0.0818	1.356***	0.569**
	(0.283)	(0.248)	(0.271)
Observations	1,633	2,285	1,698
R-squared	0.336	0.427	0.287

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7

VARIABLES	Small size q	Medium size q	Large size q
lg	0.0163*	0.0140**	-0.00351
	(0.00916)	(0.00600)	(0.0105)
size	0.0101***	0.0141***	-0.0133***
	(0.00361)	(0.00151)	(0.00161)
capital	0.0984*	0.105**	-0.115
	(0.0521)	(0.0409)	(0.0735)
loans	0.00809	-0.0509***	-0.0173
	(0.0110)	(0.00906)	(0.0131)
deposits	0.101***	0.00765	-0.0591***
	(0.0145)	(0.0119)	(0.0145)
roe	0.0682***	0.0677***	0.299***
	(0.00871)	(0.00622)	(0.0195)
Constant	0.778***	0.809***	1.459***
	(0.0748)	(0.0357)	(0.0460)
Observations	1,315	2,729	905
R-squared	0.547	0.477	0.530

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8

VARIABLES	Small size mb	Medium size mb	Large size mb
lg	0.305***	0.185***	-0.0602
	(0.0997)	(0.0639)	(0.104)
size	0.125***	0.155***	-0.136***
	(0.0393)	(0.0161)	(0.0160)
capital	-1.810***	-2.460***	-5.928***
	(0.567)	(0.435)	(0.730)
loans	0.0397	-0.461***	-0.305**
	(0.120)	(0.0964)	(0.130)
deposits	1.026***	0.180	-0.450***
	(0.157)	(0.127)	(0.144)
roe	0.971***	1.061***	3.328***
	(0.0947)	(0.0662)	(0.193)
Constant	-1.372*	-0.861**	6.220***
	(0.814)	(0.380)	(0.457)
Observations	1,315	2,729	905
R-squared	0.580	0.525	0.589

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9

	Small size	Medium size	Large size
	(1)	(2)	(3)
VARIABLES	q	q	q
lg	0.0175	0.00902	-0.0437**
	(0.0108)	(0.0104)	(0.0185)
size	0.00580	0.0109***	-0.00843***
	(0.00442)	(0.00285)	(0.00291)
capital	0.240***	0.397***	1.011***
	(0.0774)	(0.0738)	(0.139)
loans	0.0194	-0.0270*	-0.101***
	(0.0146)	(0.0158)	(0.0246)
deposits	0.147***	0.0792***	0.0262
	(0.0188)	(0.0189)	(0.0247)
roe	0.307***	0.461***	0.715***
	(0.0260)	(0.0304)	(0.0666)
Constant	0.783***	0.736***	1.179***
	(0.0918)	(0.0670)	(0.0776)
Observations	674	731	228
R-squared	0.279	0.306	0.482

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10

	Small size	Medium size	Large size
	(1)	(2)	(3)
VARIABLES	q	q	q
lg	0.0226***	0.0218**	0.0135
	(0.0173)	(0.00944)	(0.0153)
size	0.0100	0.00988***	-0.0153***
	(0.00616)	(0.00227)	(0.00232)
capital	-0.0336	0.00248	-0.346***
	(0.0758)	(0.0564)	(0.112)
loans	-0.0339**	-0.0754***	-0.0162
	(0.0171)	(0.0138)	(0.0200)
deposits	0.0190	-0.0362**	-0.0942***
	(0.0209)	(0.0175)	(0.0218)
roe	0.0408***	0.0487***	0.221***
	(0.00933)	(0.00690)	(0.0205)
Constant	0.868***	0.953***	1.542***
	(0.128)	(0.0533)	(0.0653)
Observations	596	1,308	381
R-squared	0.465	0.399	0.525

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 11

	Small size	Medium size	Large size
	(1)	(2)	(3)
VARIABLES	q	q	q
lg	0.0198	0.0136	0.0448***
	(0.0226)	(0.00865)	(0.0148)
size	-0.00270	0.0161***	-0.0151***
	(0.0109)	(0.00218)	(0.00217)
capital	0.219**	0.207***	-0.241***
	(0.0981)	(0.0665)	(0.0908)
loans	0.0251	-0.0508***	0.0119
	(0.0222)	(0.0138)	(0.0157)
deposits	0.0311	-0.0103	-0.0859***
	(0.0484)	(0.0220)	(0.0185)
roe	0.0656**	0.130***	0.780***
	(0.0252)	(0.0188)	(0.0468)
Constant	0.963***	0.668***	1.387***
	(0.234)	(0.0532)	(0.0646)
Observations	225	1,061	412
R-squared	0.299	0.321	0.515

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 12

VARIABLES	Small size mb	Medium size mb	Large size mb
	(1)	(2)	(3)
lg	0.297**	0.185**	-0.253
	(0.119)	(0.121)	(0.207)
size	0.0317	0.120***	-0.0891***
	(0.0486)	(0.0332)	(0.0326)
capital	-4.534***	-4.683***	-0.502
	(0.852)	(0.859)	(1.553)
loans	0.293*	-0.431**	-1.220***
	(0.161)	(0.183)	(0.275)
deposits	1.305***	0.692***	0.398
	(0.207)	(0.220)	(0.277)
roe	3.520***	5.202***	8.197***
	(0.287)	(0.353)	(0.745)
Constant	0.104	-0.861	3.885***
	(1.010)	(0.780)	(0.868)
Observations	674	731	228
R-squared	0.326	0.319	0.463

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 13

VARIABLES	Small size mb	Medium size mb	Large size mb
lg	0.347*	0.276***	0.139
	(0.188)	(0.103)	(0.154)
size	0.149**	0.129***	-0.159***
	(0.0670)	(0.0246)	(0.0233)
capital	0.411	-1.531**	-6.209***
	(0.823)	(0.612)	(1.126)
loans	-0.455**	-0.630***	-0.154
	(0.186)	(0.150)	(0.201)
deposits	0.424*	-0.0649	-0.858***
	(0.227)	(0.190)	(0.220)
roe	0.510***	0.796***	2.556***
	(0.101)	(0.0749)	(0.207)
Constant	-1.440	-0.215	6.831***
	(1.389)	(0.579)	(0.658)
Observations	596	1,308	381
R-squared	0.492	0.434	0.571

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 14

	Small size	Medium size	Large size
	(1)	(2)	(3)
VARIABLES	mb	mb	mb
lg	0.155	0.135	0.363**
	(0.193)	(0.0831)	(0.150)
size	-0.0146	0.148***	-0.149***
	(0.0933)	(0.0210)	(0.0219)
capital	1.346	-0.402	-6.361***
	(0.841)	(0.640)	(0.918)
loans	0.00309	-0.411***	-0.0500
	(0.190)	(0.132)	(0.159)
deposits	0.436	-0.0189	-0.674***
	(0.415)	(0.212)	(0.187)
roe	1.026***	1.533***	7.403***
	(0.217)	(0.181)	(0.473)
Constant	0.494	-1.959***	5.310***
	(2.011)	(0.511)	(0.653)
Observations	225	1,061	412
R-squared	0.384	0.314	0.504

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1