CAPITAL RATIOS OVER THE CYCLE: EVIDENCE FROM THE TURKISH BANKING SECTOR

A Master's Thesis

by
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Department of
Management
İhsan Doğramacı Bilkent University
Ankara
August 2015

To My Family

CAPITAL RATIOS OVER THE CYCLE: EVIDENCE FROM THE TURKISH BANKING SECTOR

Graduate School of Economics and Social Sciences
of
İhsan Doğramacı Bilkent University

by

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In Partial Fulfillment of Requirements for the Degree of
MASTER OF SCIENCE

in

THE DEPARTMENT OF
MANAGEMENT
İHSAN DOĞRAMACI BILKENT UNIVERSITY
ANKARA

August 2015

I certificate that I have read this thesis and found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Science in Management

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ABSTRACT

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EVIDENCE FROM THE TURKISH BANKING SECTOR

Aydoğan, Ayşe

M.S., Department of Management

Supervisor: Assoc. Prof. Süheyla Özyıldırım

August 2015

This study examines the behavior of capital ratios of Turkish banks over the business and financial cycles in the period of 1993:Q4-2014:Q3 and the sub-period 2003:Q1-2014:Q3. Capital adequacy ratio defined by Basel Committee on Banking Supervision and equity to asset ratio are used in the analyses. The capital ratios are found to behave countercyclical over the cycle, which is more pronounced in the subsample of 2003:Q1-2014:Q3. Banks' capital ratios react more to the movements in the financial cycle than business cycle. The risk based capital adequacy ratio behaves more countercyclical than equity to asset ratio. Lagged capital ratios, credit risk, size, profitability, funding structure and liquidity are found to be significant determinants of capital ratios. Capital ratios of Turkish banks are sensitive to the changes in Turkish legislation on capital adequacy.

Keywords: Capital Ratios, Capital Regulation, Business Cycle, Financial Cycle, Turkish Banking Sector

ÖZET

SERMAYE ORANLARI VE ÇEVRİMLER:
TÜRK BANKACILIK SİSTEMİ ÖRNEĞİ

Aydoğan, Ayşe

Yüksek Lisans, İşletme Bölümü

Tez Yöneticisi: Doç. Dr. Süheyla Özyıldırım

Ağustos 2015

Bu çalışmada bankaların sermaye oranları ile iş çevrimleri ve finansal çevrimler arasındaki ilişkisi 1994:Ç4-2014:Ç3 dönemi ile 2003:Ç1-2014:Ç3 alt döneminde incelenmiştir. Analizlerde Basel Bankacılık Denetim Komitesi'nin tanımladığı sermaye yeterlilik oranı ile özkaynakların varlıklara oranı kullanılmıştır. Sermaye oranlarının, 2003:Ç1-2014:Ç3 alt döneminde daha belirgin olmak üzere, döngüsellik karşıtı hareket ettiği gözlenmiştir. Bankaların sermaye oranları finansal çevrimlerdeki hareketlere iş çevrimlerindeki hareketlere göre daha fazla tepki vermektedir. Risk tabanlı sermaye yeterlilik oranı, özkaynakların varlıklara oranına göre daha fazla döngüsellik karşıtı hareket etmektedir. Gecikmeli sermaye oranları, kredi riski, büyüklük, karlılık, fonlama yapısı ve likidite sermaye oranlarının anlamlı belirleyicileri olarak bulunmuştur. Türk bankalarının sermaye oranları, sermaye yeterliliğine ilişkin yönetmelik değişikliklerine duyarlıdır.

Anahtar Kelimeler: Sermaye Oranları, Sermaye Düzenlemesi, İş Çevrimi, Finansal Çevrim, Türk Bankacılık Sektörü

ACKNOWLEDGMENTS

I would like to express my gratitude to Assoc. Prof Süheyla Özyıldırım for her guidance, attention, encouragement and positiveness.

I would like to express my thanks to Assoc. Prof Zeynep Önder and Assist. Prof. Seza Danışoğlu for their valuable comments and feedbacks, which helped me enhance my research.

I would like to thank TÜBİTAK (The Scientific and Technological Research Council of Turkey) for their financial support in my graduate study. I would like to appreciate the academic support and excellent education of Bilkent University.

I would like to thank warmly my colleagues in the Central Bank of the Republic of Turkey for their sincerity, encouragement and their help in gathering data to use in this thesis.

I would like to express heartfelt thanks to my family and my fiancé Bayındır Karasoy for their love and endless support in every step of my life.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Banking sector has been one of the mostly regulated sectors in the financial system. The main focus of supervisory regulations is on the capital adequacy of banks. A major step in that direction was the 1988 Basel Accord to ensure international convergence of supervisory regulations relating to capital adequacy of banks. Since then the regulatory framework has been improved through Basel I, Basel II and Basel III.

The major aim of the bank capital requirements is to increase the resilience of the financial system and promote financial stability (BIS, 2010). However, there are some concerns about the pro-cyclicality of capital requirements. That is, the capital framework may amplify business cycles, which may cause some unintended consequences. As Stolz and Wedow (2011) explain, the argument is that banks are likely to experience capital shocks during cyclical downturns as loan losses may increase and

credit risk of borrower may deteriorate. To meet the minimum capital requirements, banks have two options: either to raise capital or to reduce risk weighted assets. If raising new capital is difficult or costly especially in bust periods, banks may choose the second option, which results in the decrease in credit supply. Both cases would lead to a reduction in investment, thereby amplifying cyclical downturn. Conversely, during boom periods, banks tend to increase their risk weighted assets as supply and demand of credit raise with profitable investment opportunities, which result in decrease in capital ratios.

In this study, I examine how banks' capital ratios behave over the cycle in Turkey. There is evidence in the literature that the effect of cycle on bank capital buffers may depend on the measure of capital ratios as well as indicator of the cycle (see, e.g., Bikker and Metzemakers, 2004; Guidare et al., 2013; Brei and Gambacorta, 2014). Similarly, I investigate the cyclicality of different definitions of capital ratios with respect to business and financial cycle. I use two definitions of capital ratio: (1) capital adequacy ratio (capital to risk weighted assets) and (2) balance sheet leverage ratio (equity to asset). I measure business cycle as real GDP growth while financial cycle as private credit to GDP gap. The term countercyclical refers to negative relation between capital ratios and cycle in the findings of this study[1].

[1]In the analysis, I concentrate on the statistical relation between capital ratios and cycle for the explanation of results. Therefore, the term 'countercyclical' refers to negative relation between capital ratios and the cycle. That is, negative (countercyclical) relation between capital ratios and cycle in this study means having potential to amplify the cycles.

My analysis mainly builds on the methodology of Brei and Gambacorta (2014). First, I examine the relation between capital ratios and business and financial cycle and try to understand how the cyclicality of capital ratios changes during normal times and crisis times. Second, I investigate the impact of credit risk, size, profitability, funding structure and liquidity of banks on banks' capital ratios. Third, I control the effects of implementing new banking legislations over the sample period. My research questions can be framed as:

1) How do capital ratios of banks operating in Turkey behave over the cycle during 1993:Q4-2014:Q3?
2) How does this relation change over the sub-period of 2003:Q1-2014:Q3?
3) Does the behavior of banks' capital ratio vary according to the definition of capital ratios (capital adequacy ratio vs. balance sheet leverage ratio) and cycle (business cycle vs. financial cycle)?
4) Does the behavior of banks' capital ratios change during crisis periods?
5) How do capital ratios of banks change according to the bank characteristics?
6) Are banks' capital ratios sensitive to the changes in banking regulations?

This study makes several contributions to the literature on the behavior of capital ratios in the Turkish Banking Sector. First, I examine how capital ratios of banks operating in Turkey behave over the last twenty years using quarterly data. In this way, this thesis helps us to see how banks changed their behavior especially during the last decade in which whole Turkish banking system extensively restructured. Second, I investigate the behavior of different capital ratios on different cycle indicators. In the previous evidence, the main interest is to study the association between capital adequacy and business cycle but no financial cycle. Third, I control the impact of changes in Turkish banking legislation on capital adequacy in assessing the cyclicality of capital ratios. Finally, to my knowledge, this is the first study that differentiates the behavior of Turkish banks' capital ratios during normal periods and both local and global crisis periods.

Using whole sample of 1993:Q4-2014:Q3, I find negative and significant relation between capital ratios and business cycle suggesting countercyclicality of the association. However, the negative relation between capital ratios and business cycle vanishes when I control crisis periods. I provide evidence that banks' capital ratios are significantly countercyclical over the financial cycle in normal times controlling for the bank specific characteristics and regulatory changes. During the subsample of 2003:Q1-2014Q3, which covers new regulatory environment and rules for banks operating in Turkey, countercyclical behavior of capital ratios is more pronounced. In the subsample, both capital ratios have negative and

significant relation with real GDP growth and credit to GDP gap. In both whole sample and subsample, capital adequacy ratio behaves more countercyclical than equity to asset ratio. Moreover, capital ratios react more to the movements in the financial cycle than business cycle. The stronger negative relation between capital ratios and cycle measures in the subsample of 2003:Q1-2014:Q3 suggests that Basel II might have more pro-cyclical effects in terms of amplifying fluctuations in cycles than Basel I supporting Repullo and Suarez (2013).

I find that banks in Turkey, in general, increase their capital buffers during the volatile periods. I find that capital adequacy ratio is more countercyclical over the business cycle and financial during the local financial crisis particularly during the 2000-2001 crises. This finding seems to be very plausible considering extensive capital injections to restructure banks as part of the Bank Capital Strengthening Program in 2001 (Banking Sector Evaluation Report, 2004). I also provide some evidence that capital adequacy ratio continues to have countercyclical relation with the financial cycle during the global financial crisis.

In terms of the impact of bank specific characteristics and regulatory changes on capital ratios, lagged values of capital ratios are found to be persistently positive and significant, which indicates that the relevance of adjustment costs of capital in the short term. There is a positive relation between credit risk and capital ratios suggesting that banks take into account the riskiness of their credit portfolios in setting capital ratios. Large banks

have lower capital ratios in line with the too-big-to-fail hypothesis. I find evidence that there is a positive channel to capital via retained earnings particularly during the subsample of 2003:Q1-2014:Q3. In terms of funding structure, banks that use more non-deposit funding (deposit funding) have higher (lower) capital ratios, in particular when capital adequacy ratio is considered. Liquidity of banks has positive effects on capital ratios, reflecting the prudent behavior of banks. Capital ratios of banks are sensitive to the changes in Turkish legislation on capital adequacy. I observe that tighter regulations regarding the banks' capital adequacy seem to lessen the capital buffers of banks operating in Turkey. On the other hand, the amendment of Banking Law in 2005 and Basel III framework which introduces higher capital requirements both in quality and quantity, improved the capital positions of banks.

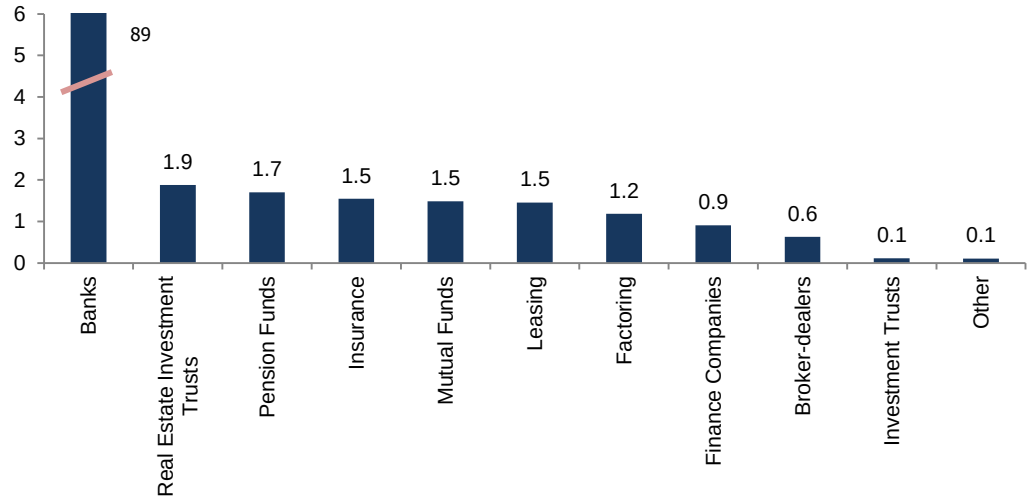
The rest of this study is organized as follows. The next chapter overviews the Turkish Banking Sector for the sample period of 1993:Q4-2014:Q3. Chapter 3 explains the international Basel Framework and compliance to Basel Rules in Turkey historically. Chapter 4 reviews the literature on the cyclicality of capital ratios. Chapter 5 describes the data and methodology used in this study and presents descriptive statistics. Chapter 6 reports the findings of the analyses. The Chapter 7 concludes the thesis.

CHAPTER 2

OVERVIEW OF THE TURKISH BANKING SECTOR

As of end-2014, the asset size of the Turkish financial sector is 2.2 trillion Turkish liras corresponding to 961 billion USD. The ratio of financial sector assets to GDP is 128 percent. In Turkey, banking sector assets represents 89 percent of total financial assets (Figure 2.1).

Figure 2.1
Turkey's Financial System Structure*
(Percent)

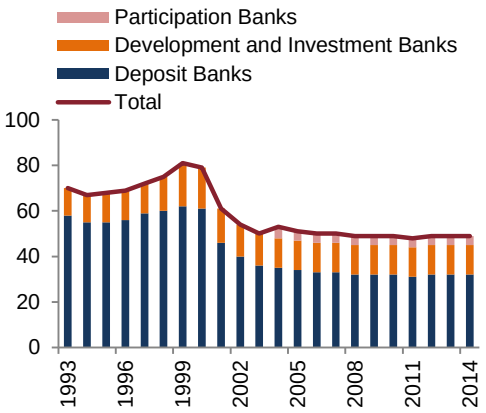


Source: CBRT, BRSA, CMB, Treasury
*As of 2014

2.1 Structural Indicators

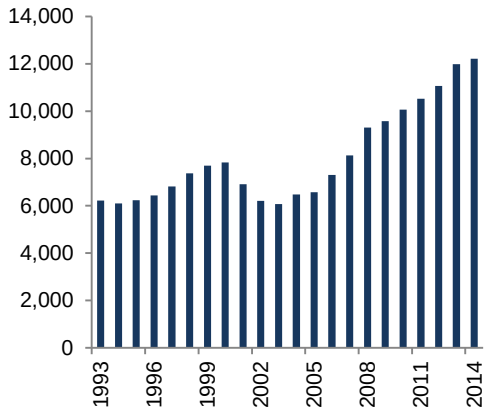
As of end-2014, there are 49 banks operating in the Turkish banking system, 32 of which are deposits banks, 4 participation banks and 13 development and investment banks. The number of banks increased rapidly between 1993-2000 due to the financial liberalization and ease of entrance to the sector (BRSA, From Crisis to Financial Stability, 2010). While the number of banks was 70 in 1993, it reached to 81 in 1999. Compared to end-2000, the number of banks in the financial system declined from 79 to 49 (Figure 2.2). During 1993-2001, there was also an expansion wave in banking services through branches in Turkey (Figure 2.3). However, during the 2000-2001 crisis, due to failed banks and restructuring efforts of surviving banks, number of branches decreased significantly. As of December 2001, 12.3 percent of the branches closed during crisis period (BRSA, From Crisis to Financial Stability 2010). However, the number of branches of banks has been increasing since 2003, which indicates the expansion of access channels to banking services. Banks have been opening branches in order to reach out more customers in a more competitive banking market structure of Turkey.

Figure 2.2
Number of Banks



Source: BRSA, The Bank Association of Turkey

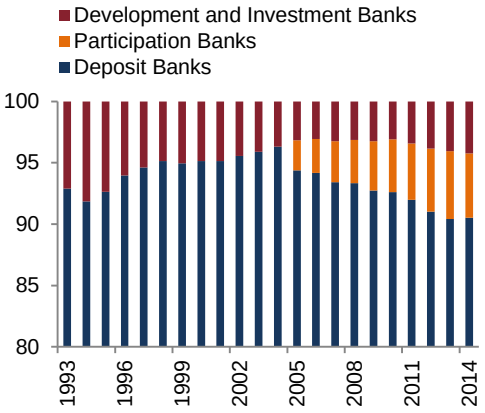
Figure 2.3
Number of Branches



Source: BRSA, The Bank Association of Turkey

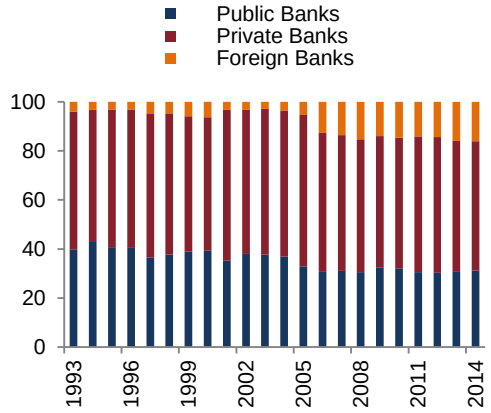
Deposit banks have the highest share in the Turkish banking system. As of end-2014, the share of deposit, participation and development and investment banks in the banking system are 90.5 percent, 5.2 percent and 4.2 percent, respectively (Figure 2.4). While deposit banks are mostly owned by privately and publicly, the share of foreign banks reached to 16.1 percent from 5.4 percent between 2005 and 2014 (Figure 2.5).

Figure 2.4
Share of Banking Groups
(Percent)



Source: BRSA, The Bank Association of Turkey

Figure 2.5
Deposit Banks Based on Ownership
(Percent)

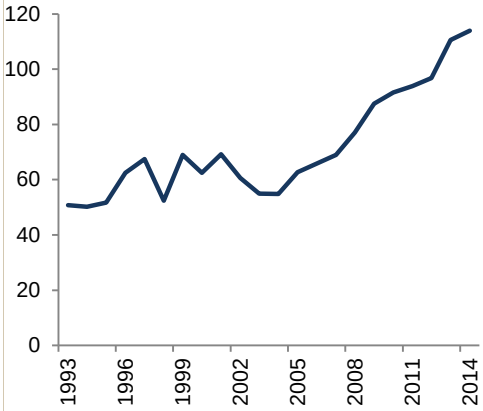


Source: BRSA, The Bank Association of Turkey

2.2 Size of the Banking Sector

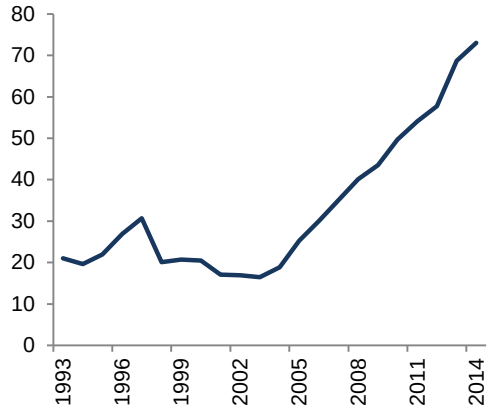
As of December 2014, the total asset size of the banking system is 1.9 trillion Turkish liras. The ratio of total assets of the banking sector to GDP increased from 50.8 percent in 1993 to 114 percent in 2014 (Figure 2.6). There has also been a rapid increase in loans of commercial banks since 2004, reaching to 73 percent of GDP in 2014 (Figure 2.7). As it can also be seen from the Figure, during the 1993-2004 period, total loans to GDP ratio was around 20 percent suggesting very limited credit growth over the early period of our analysis.

Figure 2.6
Total Assets to GDP
(Percent)



Source: BRSA, The Bank Association of Turkey

Figure 2.7
Total Loans to GDP
(Percent)

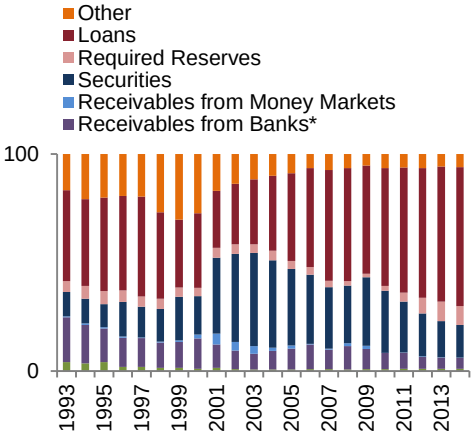


Source: BRSA, The Bank Association of Turkey

2.3 Structure of the Bank Balance Sheet

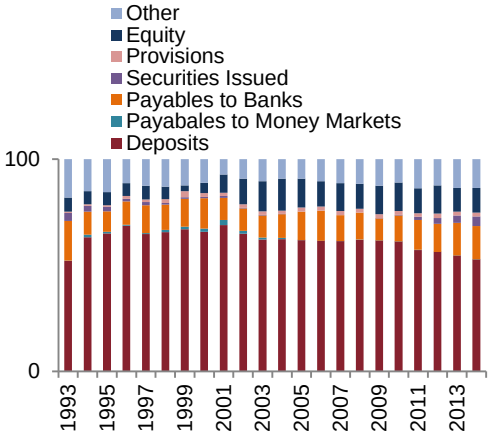
Loans are the main items in the asset structure of the banking system with a share of 64 percent in total assets, as of end-2014. Securities have the second highest share with a rate of 15 percent. While share of loans continue to increase, securities portfolio decreased to 15 percent of total assets from the levels around 43 percent in 2003. As it can be seen from Figure 2.8, the share of required reserves and receivables from banks increased in exchange of decrease in the share of securities portfolio. On the liability side, deposits are the primary funding source of banks, although the share of deposits has been decreasing since 2001. The share of issued securities, on the other hand, increased significantly, currently representing the 4.5 percent of total liabilities. It seems that banks started to diversify sources of funding (Figure 2.9).

Figure 2.8
Asset Structure
(Percent)



Source: BRSA, The Bank Association of Turkey
*Receivables from banks includes central bank

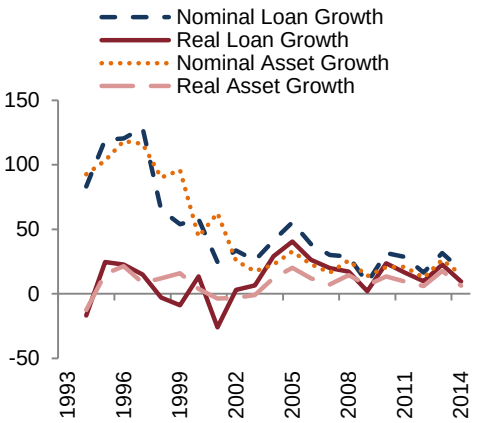
Figure 2.9
Liability Structure
(Percent)



Source: BRSA, The Bank Association of Turkey
*Payables to banks includes central bank

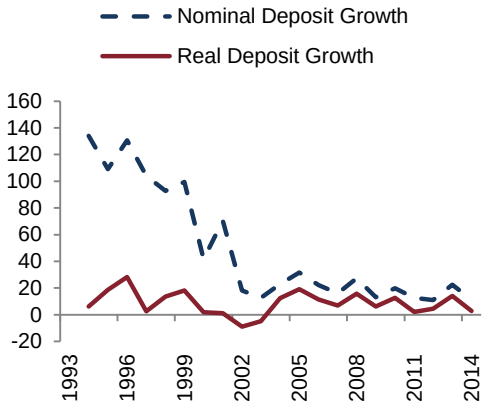
Since 2003, Turkish banking sector has experienced positive growth. As of end-2014, nominal and real growth rate of assets is 15.1 and 6.4 percent, respectively. Turkey has a rapid loan growth with an annual nominal rate of 18.6 percent and real rate of 9.6 percent (Figure 2.10). However, deposits' growth pace is slower than the loan growth rate. As of end-2014, annual nominal growth in deposits is 11.3 and annual real growth in deposits 2.9 percent (Figure 2.11).

Figure 2.10
Asset and Loan Growth
(Percent)



Source: BRSA, The Bank Association of Turkey

Figure 2.11
Deposit Growth
(Percent)

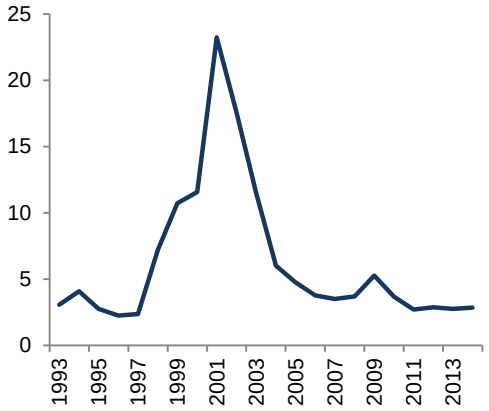


Source: BRSA, The Bank Association of Turkey

2.4 Credit Risk

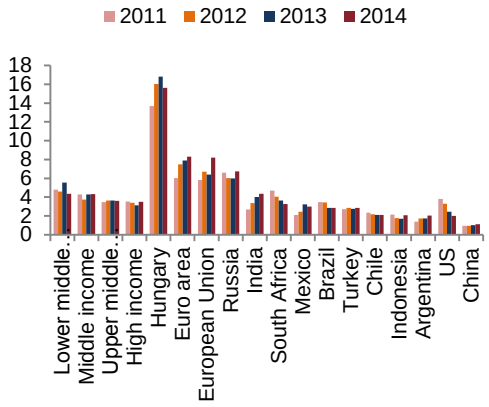
The non-performing loans to total loans (NPL) ratio is 2.85 percent, as of December 2014. The sector's NPL ratio demonstrated a significant decline since 2001. Apart from this decline, the NPL ratio has been stabilized around 2-3 percent since 2011 (Figure 2.12). According to the world development indicators, aggregate NPL ratios in countries with respect to all income levels are higher than NPL ratio of the Turkish banking system since 2011 (Figure 2.13) suggesting relatively limited credit risk in the Turkish banking sector compared to other countries.

Figure 2.12
NPL Ratio
(Percent)



Source: BRSA, The Bank Association of Turkey

Figure 2.13
NPL Ratio by Countries
(Percent)



Source: BRSA, The Bank Association of Turkey

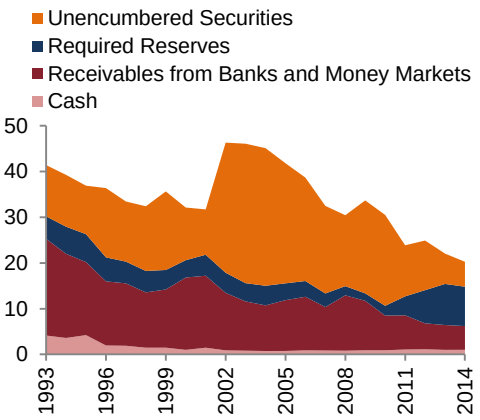
2.5 Liquidity Risk

Liquidity risk of the banking sector decreased with the economic stability obtained after 2002 in Turkey. Low interest rate environment led banks to invest in high-yield assets instead of low-yield liquid assets (BRSA, Banking Sector Evaluation Report, 2004). Consequently, as of end-2014, the ratio of liquid assets to total assets decreased to 20 percent from 46 percent in 2003 (Figure 2.14).

Loan to deposit ratio is in the upward trend since 2002 (Figure 2.15). Although this development can be considered as more credit market intermediation activities of banks, non-core funding increases banks' sensitivity to liquidity shocks due to its unstable and short term nature. Nevertheless, I can argue that liquidity risk of the banking sector is at manageable levels considering the period after 2000-2001 crisis. Liquidity

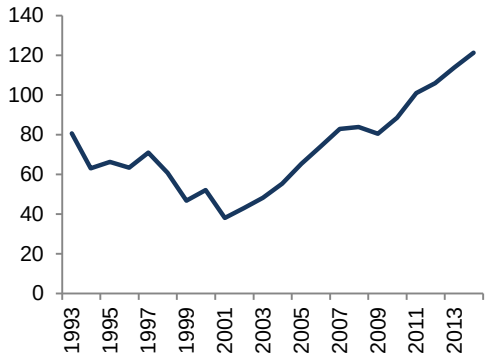
ratios are significantly above the minimum limits set by the Banking Regulation and Supervision Authority.

Figure 2.14
Liquid Assets
(Percent)



Source: BRSA, The Bank Association of Turkey

Figure 2.15
Loan to Deposit Ratio
(Percent)



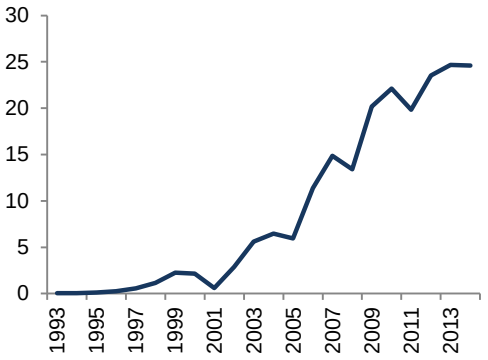
Source: BRSA, The Bank Association of Turkey

2.6 Profitability

The profitability of the banking sector improved significantly after 2002, mainly reflecting the positive impacts of Banking Sector Restructuring Program introduced in 2001 in response to the crisis. The profits of the banking sector have been increasing. As of end-2014, the profit for the period stands at 24.6 billion Turkish lira (Figure 2.16). However, return on asset and return on equity are on a downward trend in recent years. As of end-2014, return on asset and return on equity are 1.3 percent and 12.3 percent, respectively (Figure 2.17). The fact that net profit of the banking sector increases and profitability ratios remain in a downward trend reflects the

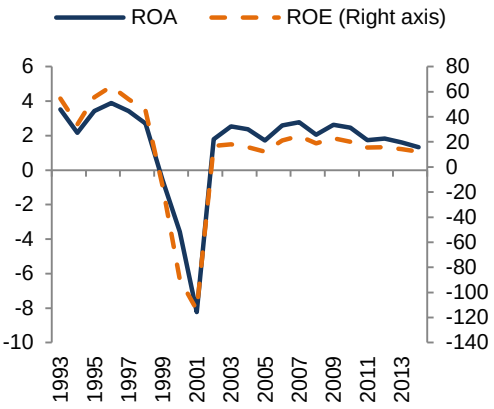
more competitive banking sector and the rise in average assets and average equities.

Figure 2.16
Profit for the Period
(Billion Turkish Lira)



Source: BRSA, The Bank Association of Turkey

Figure 2.17
Profitability
(Percent)



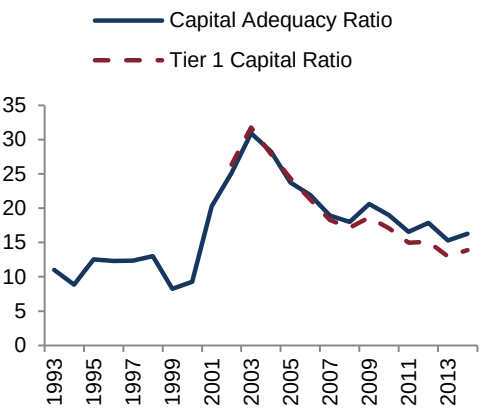
Source: BRSA, The Bank Association of Turkey

2.7 Capital Adequacy

While capital adequacy ratio was 9.3 percent in 2000, it reached to 20.3 percent at end-2001, 25.1 percent at end-2002 and 30.9 percent at end-2003. The improvement in capital adequacy stemmed from strengthening the capital of banks within the scope of Banking Sector Restructuring Program that requires fund injections to restructure public banks and SDIF banks financially, and increases in profitability. Since 2003, there is a downtrend in capital adequacy ratio and equity to asset ratio of banks. As of end-2014, capital adequacy ratio of banking sector is 16.3 percent, while equity to asset ratio is 11.6 percent. Despite the downtrend, the capital adequacy ratio of the banking sector is well above the minimum legal requirement (8 percent) and

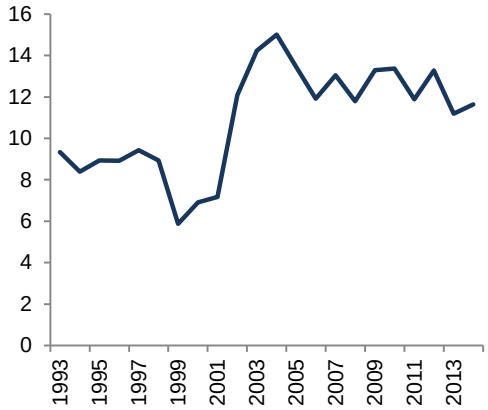
target ratio of 12 percent set by the Banking Regulation and Supervision Authority[2] (Figure 2.18 and 2.19).

Figure 2.18
Capital Adequacy Ratio
(Percent)



Source: BRSA, The Bank Association of Turkey

Figure 2.19
Equity to Asset Ratio
(Percent)



Source: BRSA, The Bank Association of Turkey

[2] Banking Regulation Supervisory Board announced a target capital adequacy ratio of 12 percent in November 2006. It is decided that banks that fall below 12 percent will not be able to open new branches.

CHAPTER 3

THE BASEL FRAMEWORK

3.1 The Basel Rules Historically

The Basel I, II and III rules are published by the Basel Committee, which is the standard setting body for the prudential regulation of banks. The main aim of the Basel rules is to increase the resiliency of the banking system and enhance financial stability.

The Basel Committee on Banking Supervision started to work to ensure internationally uniform capital adequacy standards in 1980's. In this respect, the Basel Accord (Basel I) was published on July 1988. The framework was designed for internationally active banks. But, national authorities had the discretion to apply the framework for other banks.

The main focus of Basel I is on the default risk of counterparty, namely, credit risk. Credit risk is calculated by assigning assets and off-balance sheet items across different categories based on their relative

riskiness. Then, assets and off balance sheet items in different categories are multiplied with corresponding risk weights to reach the risk weighted assets. There were five risk weights in Basel I framework: (i) 0 percent (ii) 10 percent (iii) 20 percent (iv) 50 percent (v) 100 percent. Capital is defined in terms of Tier 1 capital and Tier 2 capital. Tier 1 capital is the core element of capital. Tier 1 capital includes shareholders' equity and disclosed reserves (which is created by retained earnings and other surplus like share premiums). Tier 2 capital is the supplementary elements of capital. It consists of undisclosed reserves, asset revaluation reserves, general provisions, hybrid (debt/equity) capital instruments and subordinated debt. Capital adequacy ratio is calculated as capital divided by risk weighted assets. The minimum requirement is set at 8 percent with a minimum Tier 1 capital ratio of 4 percent.

In 1996, the Basel Committee amended the Basel Capital Accord to cover market risk. With this amendment, banks are required to calculate capital charges for market risk in addition to credit risk. Market risk is defined as "the risk of losses in on and off balance sheet positions arising from movements in market prices" (BIS, 1996). Market risk includes interest rate risk and equity risk (for trading book), foreign exchange risk and commodity risk. Banks are also allowed to use standardized approach and internal models approach (subject to certain conditions) for the measurement of capital charges. In addition, the definition of eligible capital to cover market risks is expanded. With the national discretion, banks may hold

Tier 3 capital which consists of short term subordinated debt in purpose of covering capital charges resulting from market risk.

Basel I helped to increase stability and soundness of the banking system. It provided level playing field for internationally active banks. Its simplicity made it easier for developing economies to adopt Basel I (Yayla and Kaya, 2005). However, "one size fits all" approach and simplicity bring some criticism, especially from international market players and academia. After the financial crises in the late 1990's (e.g. Asian financial crisis and Russian financial crisis), risks in the banking system became more complex and challenging. Although, the inclusion of market risk into Basel framework and other amendments made Basel I more risk sensitive, it did not include interest rate risk in the banking book, operational risk, etc. Therefore, the Basel Committee decided to establish a new capital adequacy framework to mitigate existing weaknesses and enhance Basel I.

Following an extensive consultation process with the industry between 1999 and 2003, the revised international capital framework, Basel II, was published on June 2004. Then the comprehensive version of the international capital standard, which consists of June 2004 Basel II framework with its update in 2005[3] and the remaining elements of Basel I framework, arose.

[3] In 2005, there was an update to the 2004 version of Basel II. The update was about the treatment of double default effects (default of borrower and guarantor on the same obligation) and application of Basel II to exposures stemming from trading activities.

The minimum capital adequacy ratio of 8 percent, the basic structure of market risk which comes into force with 1996 amendment to the 1988 Basel Accord and definition of eligible capital are maintained in Basel II. Besides all these, there are fundamental changes in the Basel II framework. In addition to credit risk and market risk, the concept of operational risk is included in the measurement of banks' capital charges. The Basel framework describes operational risk as "the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events" (BIS, 2004). In addition to the review of standardized approaches, internal rating based approaches are provided for each category of risk for larger and more sophisticated banks. The use of internal based approaches is subject to the approval of supervisory authority. Apart from the minimum capital adequacy requirements; Basel II framework underscores the importance supervision and market discipline. In this respect, there are three Pillars of the Basel II framework.

The first pillar is the calculation minimum regulatory capital requirements for credit risk, operational risk and market risk. Capital ratio is calculated as the regulatory capital divided by risk weighted assets. Capital is defined as Tier 1 capital and Tier 2 capital similar to 1988 Basel accord. Definition of Tier 3 capital, which includes short term subordinated debt, is also maintained to meet capital requirements arising from market risk. After deduction of some items from capital like goodwill, regulatory capital is reached. The second pillar of Basel II is built on supervisory review process.

The aim of Pillar 2 is to ensure that banks have enough capital for underlying risks and to encourage banks for better risk management. There are four main areas to be considered under Pillar 2. Supervisors are expected to assess the risks that are not fully captured under Pillar 1 requirement (e.g. credit concentration risk), risks that are not covered under Pillar 1 (e.g. interest rate risk in the banking book) and external factors to banks (e.g. impacts of business cycle). Supervisors should also examine whether banks meet the minimum standards and disclosure requirements relating to the use of advanced approaches in calculating credit risk, operational risk and market risk. The third pillar of Basel II develops disclosure standards. Thereby, market participants have the chance to assess the aspects relating to risk management and capital adequacy of banks, which increases the role of market participants to encourage banks to hold adequate level of capital for underlying risks.

Basel I and Basel II failed to prevent global financial crisis, as it is witnessed in 2008-2009. Excessive leverage of the banking system made global crisis more severe. The capital depleted gradually in quality and quantity. Banks did not have enough liquidity buffers. Therefore, the banking system was not able to absorb losses resulting from credit and trading activities. Banks' deleveraging process and the interconnectedness between banks exacerbate the impacts of crisis. In turn, taxpayers had to bear the losses due to the government interventions with capital and liquidity injections and guarantees. The global financial crisis demonstrated to the

standard setting bodies the existing weaknesses in the current system. Therefore, the Basel Committee introduced fundamental changes in the international regulatory framework on December 2010 with a revised version revealed on June 2011 (Basel III).

The Basel III can be described in the following six blocks:

1) Higher quality and higher level of capital
2) Better risk coverage
3) Capital buffers above the regulatory minimum to be built-up in good times
4) Non-risk based leverage ratio to serve as a backstop to risk-based capital requirement and to contain the built up of excessive leverage
5) Global liquidity standards to promote the short-term resilience of a bank's liquidity risk profile and to reduce funding risk over a longer time horizon
6) Stronger standards for supervision, risk management (Pillar 2) and public disclosures (Pillar 3)

The Basel III regulatory capital consists of common equity Tier 1 capital (e.g. common shares and retained earnings) and additional Tier 1 capital (e.g. subordinated debt with no maturity) and Tier 2 capital (e.g. loan loss provisions and subordinated debt with a minimum original maturity of at least five years). For each category, a set of criteria is defined for

instruments issued by the bank to be included in the relevant category. Thereby, the international consistency of definition of capital is enhanced. Tier 3 capital in Basel II is abolished.

There is greater focus of Basel III capital reforms on the common equity which is the highest quality of bank capital and has a better loss absorbing capacity. The Committee introduces more stringent definition of common equity with deductions made from common equity instead of Tier 1 or Tier 2 capital. The minimum common equity Tier 1 ratio increased from 2 percent to 4.5 percent. In addition, capital conservation buffer which comprises of common equity of 2.5 percent of risk-weighted assets produces the total common equity Tier 1 ratio of 7 percent. Moreover, countercyclical capital buffer is introduced within a range of 0-2.5 percent comprising common equity to be imposed when there is excess credit growth. Tier 1 capital ratio must be at least 6 percent of risk weighted assets (an increase of 2 percentage points from 4 percent requirement in Basel II). The total minimum capital adequacy ratio is unchanged with 8 percent.

3.2 Compliance to Basel Rules in Turkey[4]

In Turkish Legislation, the first regulation that adopts 1988 Basel Accord was issued in official gazette on 26 October 1989. Communiqué No: 6 explain the definitions relating to the standard ratio of capital base over risk weighted assets and contingencies, implementation rules, risk weights and

[4] Information in this part is gathered from Kulahi, et al. (2013) and Banking Regulation and Supervision Agency resources.

minimum requirements. The capital is defined in terms of Tier 1 and Tier 2 capital. The minimum standard ratio is determined as 8 percent. A transitional arrangement adopted starting with a minimum standard of 5 percent in 1989 and 8 percent in 1992 with 1 percentage point increases each year. The Communiqué No: 6 was replaced on 9 February 1995 with the Communiqué No: 12. The Communiqué No: 12 requires banks to fill the templates relating to capital base/risk weighted assets and contingencies quarterly and report in the following one and a half month to the Undersecretariat of Treasury. There were also two additional ratios in the template: (i) Tier 2 capital over Tier 1 capital (ii) Subordinated debt over Tier 1 capital.

The Communiqué No: 12 was abolished on 30 June 1998 with the issuance of Communiqué on the Principles and Procedures on Measurement and Evaluation of Capital Adequacy of Banks. This Communiqué required banks to meet the minimum ratio of 8 percent both on a consolidated and unconsolidated basis. Moreover, there were two additional topics. The first one was the description of market risk as a potential risk in addition to credit risk and the second one was the definition of Tier 3 capital.

With the amendment of Banking Law on 18 June 1999, core principles for effective banking supervision issued by the Basel Committee were included in the Banking Law No: 4389. Thereby, it was aimed to enhance compliance of the banking system with international standards.

On 10 February 2001, the Regulation on the Measurement and Evaluation of Capital Adequacy of Banks was published by the Banking Regulatory Supervisory Authority, reflecting the 1996 amendment of Basel I. Therefore, market risk was included into the calculation of capital adequacy on 1 January 2002 on a non-consolidated basis and on 1 July 2002 on a consolidated basis.

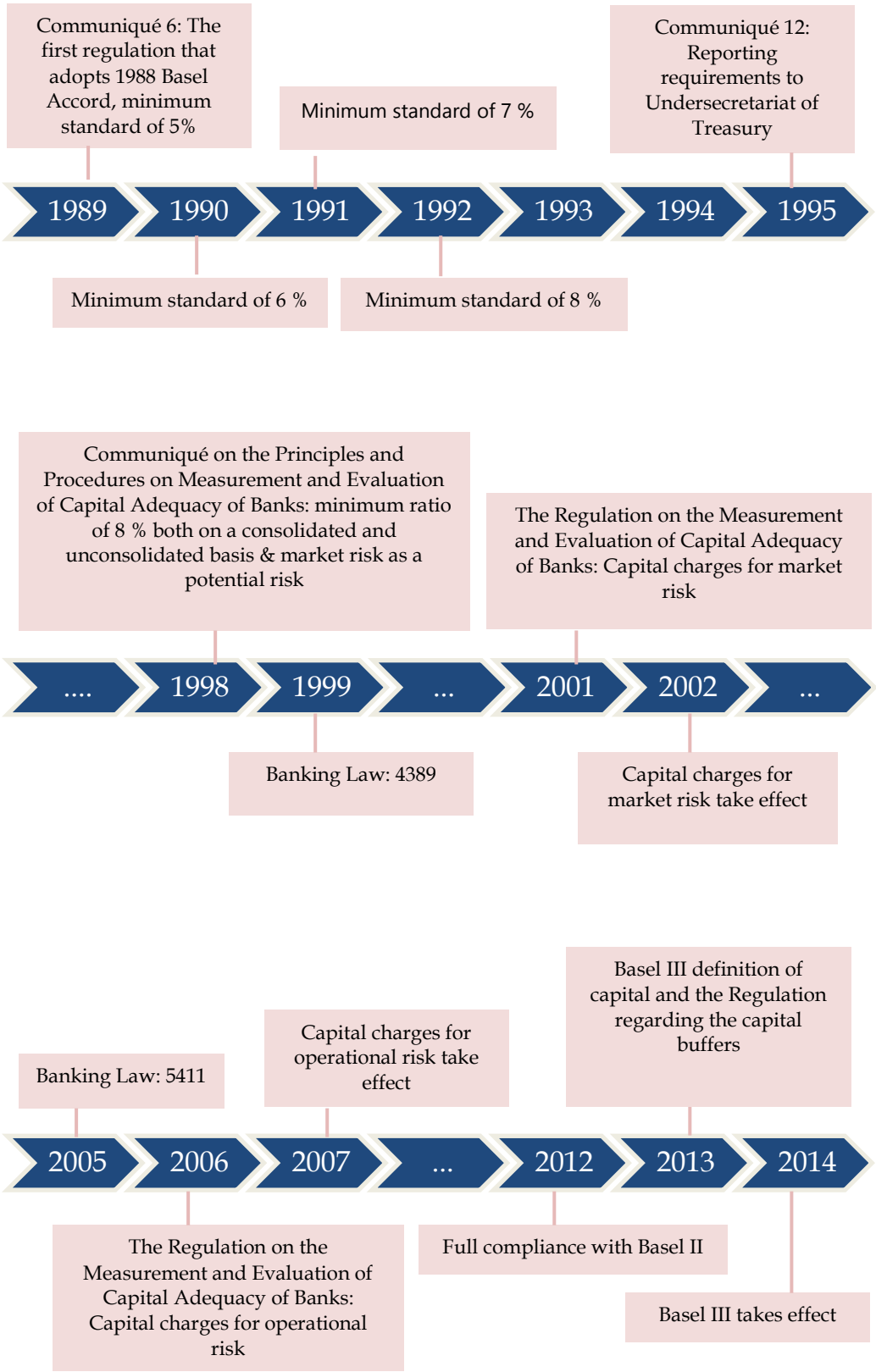
The New Banking Law No: 5411 was published on 1 November 2005 in line with the Basel II criteria. The Law regulates the provisions relating to international financial regulations, risk management system, internal control system, internal audit system, and capital and liquidity adequacy in detail. In particular, capital adequacy appears in a separate article. Banks are made obliged "to calculate, achieve, perpetuate and report capital adequacy ratio, which shall not be less than eight percent" (Banking Law No: 5411, Article 45). Moreover, the Agency could differentiate the minimum capital requirements on a bank-by-bank basis.

The Regulation on the Measurement and Evaluation of Capital Adequacy of Banks was amended on 1 November 2006. One important modification that comes into force with this regulation is the inclusion of operational risk into the capital adequacy framework. In this respect, banks started to include operational risk into calculation of capital charges on June 2007. Moreover, Banking Regulation and Supervision Agency announced a target capital adequacy ratio of 12 percent in November 2006 following a prudential regulation. It is decided that banks that fall below 12 percent will

not be able to open new branches. On 28 June 2012, Turkish legislation becomes fully compliant with Basel II Capital Framework with the adoption of the new Regulation on the Measurement and Evaluation of Capital Adequacy of Banks.

On 5 September 2013, the Regulation Regarding the Banks' Equity is published and the definition of capital has been changed in line with the Basel III capital framework with the amendment of the Regulation on the Measurement and Evaluation of Capital Adequacy of Banks. These changes took effect starting from 1 January 2014. Moreover, the Regulation regarding the Capital Conservation Buffer and Countercyclical Capital Buffer is published on 5 November 2013. Turkish banks will start to hold capital conservation buffer in 2016 with a rate of 0.625 percent. The principles and procedures for the calculation of countercyclical capital buffer will be determined by the Banking and Regulation Supervisory Board.

Figure 3.1
Basel Rules Historically in Turkey



CHAPTER 4

LITERATURE REVIEW

There is both theoretical and empirical literature that provides evidence supporting the pro-cyclicality of capital ratios. As an earlier study in theoretical literature, Blum and Hellwig (1995) develop a macroeconomic model to investigate the role of regulatory capital requirements in fluctuations. They start with goods market equilibrium condition in which aggregate supply depends on price and wage and aggregate demand is the total of household and government expenditure, investment and a disturbance term. They assume that investment is a function of bank loans and retained earnings of firms, while bank lending depends on deposit demand, equity and bank regulation and banks do not issue new capital. Their model suggests that capital adequacy requirement exacerbates the pro-cyclicality of bank lending especially when the requirement is binding. With a shock to asset returns, banks face with the capital requirement. Then, they may cut lending, which will lead to reduction in aggregate demand through

reduced investment demand, which in turn affect the returns of banks' loans due to the firms inability to pay their debts. Following this work, other theoretical studies also predicts that regulatory capital requirements intensify the implications of exogenous shocks on lending and/or on business cycles.

With the introduction of Basel II, the relation between capital requirements and business cycles has received more attention. These studies provide further evidence for the pro-cyclical effects of Basel II capital requirements (e.g. Zicchino, 2006; for further literature Drumond, 2009). In a more recent study, Repullo and Suarez (2013) conduct a dynamic equilibrium model of lending relation to examine the effects of capital requirements on bank lending, bank failure probabilities and social welfare under several capital regulation frameworks. Their parameterization of the model shows that during boom periods or the times that economy exits from recession, Basel II framework result in larger expansion of credit supply, while it results in larger reduction of credit in vice versa states. Their conclusion implies that Basel II compared to Basel I might be amplifier of business cycles. Repullo (2013) develops a model of optimal bank capital regulation, in which banks' funding sources are uninsured deposits and equity capital. In the model, the regulator determines a capital adequacy requirement to maximize the social welfare function. The results indicate that if there is a negative shock to the aggregate supply of bank capital and the regulator keep the capital requirement fixed, a larger reduction in the

aggregate investment will occur compared to the case that the regulator lowers the capital requirements in bad times.

On the side of empirical studies, Kashyap and Stein (2004) look at the cyclical implications of Basel II capital standards. In order to do so, they estimate probability of default of a firm (borrower) with different methodologies and use internal ratings approach in the Basel framework to calculate its capital requirement. For the simulations, they consider the years 1998-2002 in which US and Europe experience recessions. They find evidence that there is an increase in capital requirements between the years 1998-2002 compared to the initial capital in 1998. They also differentiate their simulations according to the portfolio quality (investment grade vs non-investment grade) and region (North America vs Europe). Their simulations suggest that cyclicality of capital ratios may depend on portfolio type and credit risk models used to estimate default probabilities.

Most of the empirical studies on the pro-cyclicality of capital requirements focus on internal ratings based approaches. Unlike these studies, Segoviano and Lowe (2002) analyze how capital requirements would change over time (March 1995-December 1999) in Mexico using standardized approach and internal ratings based approach. They find that capital requirements would have increased over the two years following the 1994 crisis in Mexico and they would have declined as the Mexican economy start to recovery in the beginning of 1997. However, capital requirements calculated by standardized approach are less cyclical than those calculated

by internal ratings based approach. They concluded that increasing capital requirements for credit risk in downturns may have macroeconomic impacts through reduction in credit supply of banks. Carpenter et al. (2001) question whether the proposed Basel Capital Accord (Basel II) in 2001 to replace the 1988 Capital Accord implies additional cyclicality. They examine how capital required in standardized approach for commercial and industrial loans would change between the 1997-2000 using Moody's data for external ratings. Their finding is that standardized approach in proposed version of Basel II in 2001 does not create additional pro-cyclicality over the 1988 framework.

It is generally observed that banks hold regulatory capital above the minimum requirements. Therefore, majority of banks may not be capital constrained. This might be another factor that may affect the potential pro-cyclical effects of capital regulations. In fact, Heid (2007) concludes that the behavior of excess capital over the minimum capital requirements is important in assessing the fluctuation in bank lending. He finds that although Basel II will have pro-cyclical effects as it is the case in Basel I, capital buffers are likely to mitigate cyclical impacts.

Regarding the cyclical behavior of capital buffers, there are different results in the empirical literature across countries and/or banking groups. One of the first empirical evidence on the pro-cyclicality of capital buffers is provided by Ayuso et al. (2004). They provide evidence for the presence of significant negative relation between capital buffers and business cycle for

Spanish banks over the years 1986-2000. Lindquist (2004) find negative effect of real GDP growth on capital buffer for Norwegian banks during the period 1995:Q4-2001:Q4, although there is limited significant statistical evidence. In another study, Jokipii and Milne (2008) examine the relation between European Union banks' capital buffer and the cycle. Their sample consists of commercial, savings and co-operative banks over the years 1997-2004. They conclude that there is significant negative relation between the capital buffer and cycle, which is in line with the earlier literature. Considering the different sub-groups, capital buffer of co-operative banks demonstrate a positive co-movement with the business cycle contrary to commercial and saving banks. Moreover, large banks' and small banks' capital buffer vary differently over the business cycle, in which the latter shows positive relation.

For Germany, Stolz and Wedow (2011) find a negative but insignificant impact of cycle on capital buffer considering saving and co-operative banks during the period 1993-2004. When they decompose the state of the business cycle, they document evidence that capital buffers increase during economic downturns, while there is no significant relation during booms. Moreover, they provide evidence that there is a negative relation between capital ratios of low capitalized banks and cycle in both upturns and downturns. Shim (2013) and Garcia-Suaze et al. (2012) also verify that bank capital buffer fluctuate in the opposite direction with the

business cycle for US bank holding companies over the period 1992:Q1-2011:Q3 and Colombian banks between 1996 and 2010, respectively.

Apart from individual countries, the cross country analyses also provide evidence for the negative co-movement of capital buffers and business cycle. For example, Bikker and Metzemakers (2004) is the first study that compares the bank capital behavior across countries. They proxy capital ratios with two definitions: (i) equity to total assets (ii) capital to risk weighted assets. As a proxy of business cycle, they use GDP growth deviation from its country specific average. They conclude that there is statistically significant negative cycle effect on capital over risk weighted assets ratio for twenty nine OECD countries over the sample period 1992-2001. However, they find no statistical evidence for the cycle effect on equity to asset ratio. The results differ across various bank size classes. For both definitions of capital ratios, small banks show positive co-movement with the business cycle in contrast to large and medium size banks.

Just like Bikker and Metzemakers (2004), recent studies have documented evidence that the effect of business cycle on bank capital buffers may depend on the measure of capital ratios as well as indicator of the cycle. The empirical study of Guidara et al. (2013) includes three different capital ratios, which are measured as equity over total assets, capital to risk weighted assets and economic capital ratio using value-at-risk based on the bank's asset distribution. As a measure of cycle, they use output gap, which is defined as the cyclical component of the real GDP obtained by using HP

filter. Their sample covers the period 1982-2010 and they use quarterly data for the six largest banks in Canada. Unlike the previous literature, they document that banks' capital buffer exhibits positive co-movement with the business cycles in Canadian banking system, based on the leverage ratio as an indicator of capital ratio. They find no significant impact of business cycle on capital buffer when it is measured using either capital to risk weighted assets ratio or economic capital ratio (although the coefficient is negative). Brei and Gambacorta (2014) also analyze three capital ratios over the cycle: the new Basel III leverage ratio, the accounting leverage ratio (Tier 1 over total assets) and Tier 1 capital to risk weighted assets ratio. They examine how different capital ratios behave differently over three cycle indicators; namely, nominal GDP growth, real GDP growth and credit to GDP gap. They use internationally active banks in fourteen advanced economies for the period 1995-2012. Considering three cycle measures, they find negative co-movement between the capital ratios and cycle, where Basel III leverage ratio behave more countercyclical than the other two ratios. During crisis period (2008-2012), all three capital ratios behave less countercyclically over the cycle, although the relation is only statistically significant when the credit to GDP gap is used.

CHAPTER 5

DATA AND METHODOLOGY

5.1 Econometric Model

In this study, I examine how bank capital ratios behave in response to the changes in business and financial cycles in Turkey using the methodology of Brei and Gambacorta (2014). More precisely, the empirical model can be formulated as follows:

$$Capital\ ratio_{it} = \alpha_i + (\gamma + \gamma^* Crisis_t) Cycle_t + \beta Capital\ ratio_{it-1}$$
$$+\theta X_{it-1} + \delta Crisis_t + \varphi D_t + \varepsilon_{it}$$

$$where\ i = 1,2,\dots,N\ (number\ of\ banks)\ and\ t = 1,2,\dots,T\ (time)$$

where the dependent variable $Capital\ ratio_{it}$ refers to either capital adequacy ratio or balance sheet leverage ratio of bank i at time t. $Cycle_t$ represents

business cycle or financial cycle. In order to capture how the cyclicality of capital ratios changes during normal times and crisis times, a dummy variable, $Crisis_t$ for crisis period is created. Several balance sheet characteristics of banks, X_{it-1}, which might affect bank capital, are also controlled. These characteristics are credit risk (non-performing loans over total loans), size (natural logarithm of banks' total assets), profitability (ROA), funding structure (non-deposit funding or deposit funding) and liquidity (liquid assets over total assets). I also include dummy variable, D_t to control the effects of changes in Turkish banking legislation during the sample period, 1993:Q4-2014:Q3. The lagged dependent variable $Capital\ ratio_{it-1}$ is a measure of short-term adjustment costs. Adjustment costs may be relevant due to the information asymmetries between investors and issuer, which makes it harder to raise capital in a short term (Myers and Majluf, 1984). Finally, the variable α_i captures the bank fixed effects and ε_{it} indicates the error term in the model.

Overall, using the above empirical model, I aim to answer the following questions:

1) How do capital ratios of banks' operating in Turkey behave over the cycle during 1993:Q4-2014:Q3?
2) How does this relation change during the sub-period of 2003:Q1-2014:Q3?
3) Does the behavior of banks' capital ratio vary according to the definition of capital ratios (e.g capital adequacy ratio and balance

sheet leverage ratio) and cycle (e.g. business cycle and financial cycle)?

4) Does the behavior of banks' capital ratios change during crisis periods?
5) How do capital ratios of banks change according to the bank characteristics?
6) Are banks' capital ratios sensitive to the changes in regulations?

My model has a possible problem of endogeneity. The capital held may affect the risk profile of banks in addition to that risk profile of banks may be a determinant of bank capital. Moreover, the state of the banking sector may impact the business cycle and financial cycle as remarked by Brei and Gambacorta (2014). I try to mitigate this endogeneity problem in two ways. First of all, I estimate the econometric model by System Generalized Method of Moments (System-GMM) dynamic panel methodology developed by Blundell and Bond (1998). I instrument exogenous variables by themselves and endogenous variables by their lags in levels. Secondly, I use bank specific characteristics in their one-period lags X_{it-1} as in Brei and Gambacorta (2014).

5.2 Data

I use an unbalanced bank-level panel data for deposit banks in Turkey. I obtained data from the database of Central Bank of the Republic of Turkey. The main sources for the data used in this study are banks' balance

sheet, income statements and regulatory templates for capital adequacy, which are reported regularly to the Central Bank of the Republic of Turkey and Banking Regulation and Supervision Agency. Moreover, I use the database of Turkish Statistical Institutes and Bank for International Settlements for macroeconomic and financial indicators.

My data adopt a quarterly frequency. It covers eighty-two quarters from 1993:Q4 to 2014:Q3. The sample of banks includes public banks, private banks and foreign banks. I exclude investment and development banks and participation banks from the sample as each bank type has different business models. Banks under the control of Saving and Deposit Insurance Fund (SDIF) are also excluded from the sample since these banks cannot extend credits and exercise standard banking activities. After all, 65 banks are analyzed in this study.

Dependent and Explanatory Variables

Capital Ratios

Similar to Guidara et al. (2013) and Brei and Gambacorta (2014), I consider two capital ratios to understand whether cyclicality of capital ratios depends on how capital ratio is measured:

1) Capital adequacy ratio based on Basel Framework
2) Balance sheet leverage ratio

Capital adequacy ratio is calculated as the regulatory capital divided by the total risk weighted assets (BCBS 1988, 2006, and 2010). Balance sheet leverage ratio corresponds to the equity divided by assets.

I also include lagged dependent variable into my models to capture the effect of short term adjustment costs. Adjustment costs may be relevant due to the information asymmetries between investors and issuer, which makes it harder to raise capital in a short term (Myers and Majluf, 1984)

Cycle

I consider two cycle indicators in my analysis:

1) Real GDP growth rate as a measure of business cycle.
2) Private credit to GDP gap as a measure of financial cycle.

Thereby, I aim to capture how capital ratios react to the changes in both economic and financial environment. Private credit to GDP gap indicates the difference between the private credit to GDP ratio and its trends. I apply one-sided Hodrick-Prescott filter with a smoothing factor lambda of 400000 to find the cycle and trend components in line with the Basel III guidelines for the countercyclical capital buffer[5].

Credit risk

I use the ratio of non-performing loans to total loans as a measure of risk profile of banks (see among others Shim, 2013; Jokipii and Milne, 2008).

[5] http://www.bis.org/publ/bcbs187.pdf

This is an ex-post credit risk and can be regarded as a good pointer of asset quality of banks.

If banks hold more risky assets, they are likely to keep higher capital to withstand losses in the event of defaults. Therefore, if banks adjust their capital in line with the riskiness of their portfolio; I expect a positive relation between risk measure and capital ratios.

Size

Bank size is measured as a natural logarithm of total bank assets[6]. I also created two dummy variables, namely large and small. Dummy variable for large banks takes value 1 for the top seven banks in Turkey, as of December 2014. Dummy variable for small banks takes value 1 if the natural logarithm of total bank asset is in the lowest decile.

In the literature, there are two hypotheses about the relation between size and capital. In the first case, large banks may hold higher capital due to their complex structure and importance of asymmetric information (Gropp and Heider, 2010). On the other hand, according to the too-big-to-fail hypothesis, large banks may hold less capital than other banks. They believe that they will take government support in the event of failure because their failure would cause significant disruption to the financial system and real sector. Moreover, as large banks would be more diversified and have more access to the capital markets, they could have less capital.

[6] Total assets are adjusted for inflation based on 1998 CPI.

In line with the second view, I expect a negative relationship between bank size and capital ratios due to the too-big-to-fail hypothesis for large Turkish banks.

Profitability

I use return on assets to measure the bank profitability. If profitability measures reflect the direct cost of remunerating, banks may have less capital. Moreover, if profitable banks face lower cost of issuing equity, they may prefer to hold lower capital buffers. On the other side, banks may increase capital through retained earnings because raising equity is more costly than external financing (Myers and Majluf, 1984). Therefore, the direction of the relationship between profitability and capital ratios is ambiguous. In this study, I have also no expectation on the direction of the relation for Turkish banks during the sample period.

Funding Structure

I consider funding structure in two aspects: (I) wholesale funding; (II) deposit funding. I use the ratio of non-deposit non-equity liabilities over total assets as an indicator of wholesale funding. I calculate deposit funding as the ratio of deposits to total assets.

The sign of the coefficient is uncertain. If banks have greater access to the capital markets and have greater funding capability, they may choose to hold lower capital buffers. On the other hand, if banks rely on more non-

stable or non-core sources of funding, e.g wholesale funding, to fund their assets, they need to hold more liquid assets to avoid funding liquidity risk (Farag et al., 2013). As liquid assets have lower risk weights, they increase the capital ratio of banks for a given level of capital. Therefore, I have no expectation on the direction of the relation between funding structure and capital ratios.

Liquidity

I use the ratio of liquid assets to total assets as a measure of liquidity. Liquid assets comprise of cash, receivables from central bank, receivables from money market, receivables from banks, securities available for sale, receivables from reverse repo[7].

Capital can absorb losses as a source of funding. However, liquidity serves as a backstop to mitigate the risk of liquidity crisis where other sources of funding become scarce. Banks with a higher level of liquidity can easily make payments of its obligations. Moreover, banks can increase their capital through the liquidation of these liquid assets. Therefore, these banks face lower level of optimal capital (Stolz and Wedow, 2011). Therefore, I expect a negative relationship between liquidity and capital ratios.

[7] Since there have been several modifications to the templates of bank balance sheets reported to the Central Bank of the Republic of Turkey, there are changes in the components of liquid assets before 2002.

Regulatory Changes

I create dummy variables to control the effects of changes in Turkish banking legislation, particularly on capital adequacy.

First regulation that adopts 1988 Basel Accord was published on official gazette in 1989 in Turkey. Since then, there have been many modifications in Turkish legislation to comply with Basel I, Basel II and Basel III frameworks.

There are several important modifications among others to the Turkish legislation as explained in Section 3. On June 2002, Turkish banks started to include market risk into their calculations of capital adequacy ratio. Moreover, on June 2007, the concept of operational risk is included into calculation of capital adequacy. Turkish legislation on capital adequacy becomes fully complied with Basel II requirements with the regulation on Measurement and Evaluation of Capital Adequacy of Banks published on June 2012. Finally, On September 2013, Turkish legislation adopted Basel III capital rules, which is in force since the beginning of 2014.

In 2005, new Banking Law published in Turkey. Provisions relating to risk management, internal control, internal audit, and capital and liquidity adequacy are regulated in detail in 2005 Banking Law. Banks are also made obliged to regulatory minimum ratios.

Hence, I have dummy variables as follows:

- *D1995* for the amendment of Communiqué on capital adequacy equals to one during the period 1995:Q1-1998:Q2
- *D1998* for the amendment of Communiqué on capital adequacy equals to one during the period 1998:Q3-2000:Q4
- *D1999* for the amendment in Banking Law equals to one during the period 1999:Q2-2005:Q3
- *D2002* for the introduction of market risk equals to one during the period 2002:Q1-2014:Q3
- *D2005* for the amendment in Banking Law equals to one during the period 2005:Q4-2014:Q3
- *D2007* for the introduction of operational risk equals to one during the period 2007:Q2-2014:Q3
- *D2012* for the compliance to Basel II framework equals to one during the period 2012:Q3-2013:Q4
- *D2014* for the introduction of Basel III capital framework equals to one during the period 2014:Q1-2014:Q3

Crisis Dummies

I control the effect of local financial crisis (1994 and 2000-2001 crises) and recent global financial crisis (2008-2009) in my analysis. In this respect, three dummy variables for crisis periods are described as follows: (1) Crisis 1 is for 1994 crisis (equals to one for 1994:Q1-1994:Q4), (2) Crisis 2 for 2000-2001

crises (equals to one for 2000:Q1-2001:Q4)[8], and (3) Crisis 3 for 2008-2009 global financial crisis (equals to one for 2008:Q1-2009:Q4).

The following table summarizes the variables and their descriptions:

Table 1. Variable Descriptions

Variable	Description
Capital Adequacy Ratio (CAR)	Regulatory capital over risk weighted assets in line with the Basel Framework
Balance Sheet Leverage Ratio (LEV)	Equity over assets
Cycle 1	Real GDP growth rate
Cycle 2	Private credit to GDP gap
Risk	Non-performing loans to total loans
Size	Natural logarithm of total assets
Large	Dummy variable which takes value one for top 7 banks in Turkey, as of December 2014.
Small	Dummy variable which takes value one if the natural logarithm of total bank asset is in the lowest decile.
ROA	Return on asset as a measure of profitability
Non-deposit funding	Non-deposit & non-equity liabilities over total assets
Deposit funding	Deposit over total assets
Liquidity	Liquid assets over total assets
$\mathbf{D_{year}}$	Dummies for regulatory changes in Turkey
$\mathbf{Crisis_t}$	Dummies which takes value one during crisis period

5.3 Descriptive Statistics

Table A1 provides the summary statistics for selected variables. As it can be seen, banks' capital adequacy ratio is on average 25.2 percent, while equity to asset ratio is 15.3 percent for the whole sample period. The mean of the real GDP growth is 4.1 percent. Turkey has a positive credit to GDP gap of 3 percent on average. The average ratio of non-performing loans to total loans stands at 5.7 percent. The average total asset of banks' in the sample is

[8] To capture the financial turmoil before 2000-2001 crisis, I control the whole year for 2000 and 2001.

12.1 billion Turkish liras in nominal terms, 1.4 billion Turkish liras in real terms. Banks' have a return on asset of 3.1 percent on average over the sample period. I observe that deposits are the main funding source for banks with an average rate of 47.7 percent.

In Table A2, banks are classified across different groups based on profitability, size, funding structure, revenue diversity, riskiness and ownership. In this way, I aim to highlight the differences for selected variables across these classifications. I observe that banks with high profitability, high risk profile, higher share of non-deposit funding and less diversified revenues have higher capital ratios. Moreover, large banks have lower capital ratios in line with the too-big-to-fail hypothesis.

Moreover, large banks have lower ratios of risk weighted assets to total assets, non-performing loans and provisioning. Additionally, large banks have more reliance on deposit funding. Interestingly, banks with more diversified revenues are small banks.

The last section of Table A2 indicates that bank characteristics differ significantly based on ownership. Foreign banks are more capitalized than public banks and private banks. While private banks have the lowest capital adequacy ratio, in terms of equity to assets, public banks have the smallest ratio. Public banks have higher non-performing loans, but lower risk weighted asset to total assets. Moreover, foreign banks are more diversified in their activities of revenue rising. Public banks show higher reliance on

deposit funding compared to private and foreign banks. The share of deposits in the funding structure is least for foreign banks.

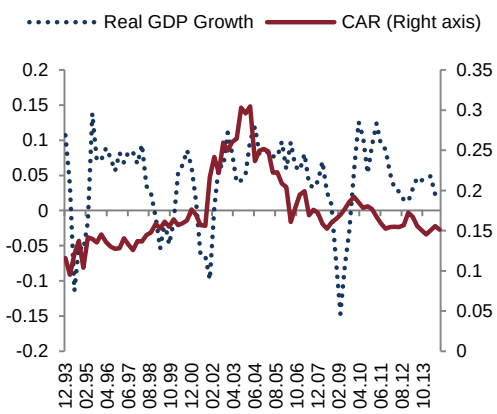
Table A3 indicates the correlations between selected variables. It suggests that relationship between capital ratios and cycle may depend on how capital ratio and cycle are defined. For example, equity to assets ratio has negative correlation with real GDP growth, while it has positive correlation with private credit to GDP gap. Both measures of capital ratios are positively correlated with non-performing loan ratio, profitability and non-deposit funding. On the other hand, capital ratios are negatively correlated with size and deposit funding.

As the Turkish Banking Sector has gone through many structural changes after 2002, I report the summary statistics before and after 2002 to document these changes. As it can be seen from Table A4 and Table A5, average capital ratios of deposit banks in Turkey increased significantly after 2002. On average, Turkey has a negative private credit to GDP gap before 2002. Banks have significantly lower profitability after 2002 suggesting possible effect of increasing competition in the sector. The risk profile of banks based on non-performing loans seems to be no significantly changing in the sub-periods of before and after 2002.

Before discussing panel data results, I present how aggregate banking data in the sample behaves over the real GDP growth and credit to GDP gap during the sample period. As it is seen in Figures 5.1 and 5.2, there is a negative co-movement between capital adequacy ratios of Turkish banks and

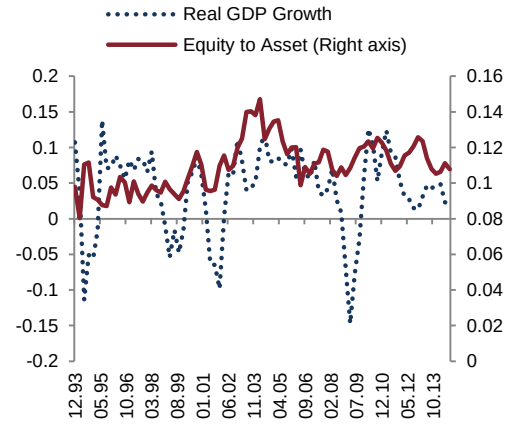
the business and financial cycles, respectively. Figures 5.3 and 5.4 demonstrate equity to asset ratio over business and financial cycle, respectively. It seems that equity to asset ratio and private credit to GDP gap move in opposite directions suggesting countercyclicality over the cycle.

Figure 5.1
Capital Adequacy Ratio over the Business Cycle



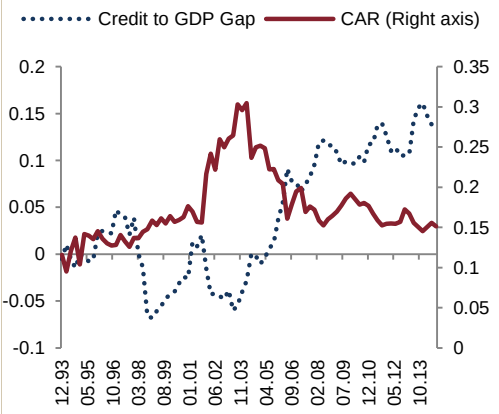
Source: CBRT, Turkstat

Figure 5.2
Equity to Asset Ratio over the Business Cycle



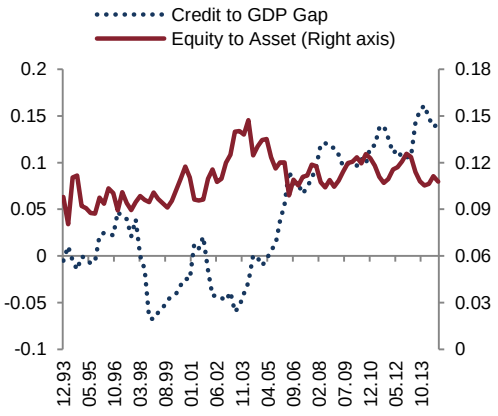
Source: CBRT, Turkstat

Figure 5.3
Capital Adequacy Ratio over the Financial Cycle



Source: CBRT, Turkstat

Figure 5.4
Equity to Asset Ratio over the Financial Cycle



Source: CBRT, Turkstat

CHAPTER 6

RESULTS

In this section, I summarize the findings of regression analyses using whole sample of 1993:Q4-2014:Q3 (Table B6-B9) and subsample of 2003:Q1-2014:Q3 (Table B10-B14). I estimate the econometric models using two-step System-GMM dynamic panel methodology of Blundell and Bond (1998). For the validity of GMM, there should be no autocorrelation of order two and the instruments should be exogenous. Therefore, I report the p-values for AR (2) test and Hansen test for the validity of instruments. In two step estimation, I use robust standard errors for heteroskedasticity correction. I also divide the tables into sections based on cycle measure and variables included in the models.

In the regression analysis, I first construct baseline models including only lagged capital ratios and cycle. Then I add basic bank specific characteristics; namely risk, size and profitability, into my models. In the third step, I include funding structure and liquidity characteristics of banks

in the models. Finally, I control the effects of regulatory changes on capital adequacy of banks. So, my full models control bank specific characteristics, regulatory changes and crisis periods to understand the association between capital ratios and cycle.

Primarily, Table B6 represents the results for baseline regressions using the whole sample. The sign of the coefficient on cycle measures is always negative, which indicates that both capital adequacy ratio and equity to asset ratio are countercyclical. It is also observed that capital ratios are more countercyclical over the real GDP growth (Cycle1) compared to credit to GDP gap (Cycle2) and are statistically significant only for business cycle (see columns (1) and (2) in Table B6). The coefficient of lagged capital ratios is positive and statistically significant, which provides evidence for the relevance of short-term adjustment costs.

In terms of economic significance, the coefficient -0.0979 in column (1) of Table B6 indicates that if real GDP increases 4.1 percent (which is the average of the real GDP growth rates in the sample period and equivalent to 5.7 standard deviations), capital adequacy ratio decreases by 0.4 percentage points (-0.0979*4.1) and 1.17 percentage points (-0.4/(1-0.6563)) over the long run assuming that $Capital\ ratio_{it-1} = Capital\ ratio_{it}$. This leads to 1.6 percent decrease in average capital adequacy ratio in short run (-0.4/25.2) and 4.6 percent drop in the long run (-1.17/25.2).

I extend the model of baseline regressions and control crises periods and report the estimated coefficients in Table B6, columns (5) to (12). The

negative relation between capital ratios and business cycle vanishes. Yet, it seems that banks in Turkey, in general, increase their capital buffers during the volatile periods. For example, the coefficient of dummy variables for 2008-2009 global financial crisis is persistently positive and mostly significant in all models. When I examine the relation between capital buffers and interaction of crisis dummies and cycles, I see that capital adequacy ratio is more countercyclical during the 2000-2001 crisis in Turkey (see column (9))[9]. Overall, I find no strong evidence for the change in the behavior of banks' capital ratios over the business and financial cycles during normal times and the crisis periods.

Table B7 presents the regressions results controlling for basic bank specific characteristics. In this case, I also find that there is a significant negative relation between capital ratios and the business cycle. Similarly, the capital adequacy ratio behaves more countercyclically than equity to asset ratio over the business cycle. The coefficients of basic bank characteristics are generally in line with my expectations. More specifically, I find that there is a positive relation between non-performing loans ratio and capital ratios, which suggests that banks take into account the riskiness of their credit portfolios in holding capital. The coefficient of size is significantly negative in most cases. This provides some evidence that large banks keep lower capital buffers compatible with the too-big-to-fail hypothesis. Dummy variables based on size indicate that, small banks hold significantly more capital than

[9] The test results for the linear combination of cycle and its interaction with crisis periods are reported under the regression tables.

medium and large-sized banks, however, large banks hold less capital but not significantly different than medium and small-sized banks. The coefficient of return on assets is positive but with limited statistical significance suggesting no strong evidence that Turkish banks use their retained earnings to increase their capital buffer.

When I control the crisis periods in addition to bank characteristics (columns (9) to (16)), the behavior of capital ratios and bank characteristics remains same. Moreover, I find that equity to asset ratios of banks increased significantly in the 1994 crisis in both business and financial cycle models. In 1994, Turkey faced balance of payment crisis and GDP dropped by 5.5 percent in that year. However, the recovery was very fast especially in the banking sector (TBB, 1996; Celasun et al., 1999; Togan and Hoekman, 2005) Hence, it seems plausible to observe how banks quickly increased their capital buffers in 1994 crisis. Similar to my baseline results, during the global crisis period, Turkish banks are also found to increase their capital ratios. This result is also fair since the impacts of the global financial crisis on Turkish banking system was limited and the sector remained robust during the global financial crisis. The main drivers for the improvement in capital adequacy were increases in profitability and decreases in risk weighted assets (Yorukoğlu and Atasoy, 2010). As it is reported in Table B7, columns (17)-(24), the interaction terms between crisis dummies and business and financial cycle variables have no significant coefficient, suggesting no significant change in the behavior of capital ratios during crisis. Overall, the

negative relation between capital ratios and business cycle vanishes when I control crisis periods and interaction of crisis periods with the cycle.

In Table B8, funding structure of banks, liquidity and dummies for some regulatory changes are included to the basic model to examine whether any of these might have effect on holding significantly different amount of capital buffer for banks operating in Turkey. I find some evidence that capital adequacy ratio is countercyclical over real GDP growth and credit to GDP gap (see column (1) and (7)). However, there is no strong evidence for the negative relation between equity to asset and cycle. There is a positive coefficient for non-deposit funding. I observe that non-deposit funding is generally statistically significant determinant of capital adequacy ratio while I find no evidence for models with equity to asset ratio. This result may suggest that banks use non-deposit funding to fund less risky and more liquid activities so capital adequacy ratio become higher as risk weighted assets become lower. Unlike my expectations, the impact of liquidity on capital ratios is positive and significant. That is, banks which have higher liquid assets in their balance sheet have higher capital ratios. Since liquid assets include securities, banks may hold higher capital due to the market risk (Stolz and Wedow, 2011). The coefficients of basic bank characteristics are in line with my previous findings except stronger statistical evidence for the significance of return on asset. Similar to above regressions, I observe the same capital behavior during 1994 crisis and 2008-2009 global financial crisis for Turkish banks. As seen in column (9), there is weak evidence that capital

adequacy ratio is more countercyclical during 2000-2001 crisis. In the full models in column (15)-(16), the coefficient of Cycle 2 shows that both capital ratios are significantly countercyclical over credit to GDP gap during normal times. Moreover, capital adequacy ratio continues to be significantly countercyclical over financial cycle during 2000-2001 crisis and 2008-2009 global financial crisis based on the test of linear combination of $Cycle2$ and $Cycle2 * Crisis_t$.

In Table B8, columns (5)-(8) and (13)-(16), the significant coefficients of several dummy variables for regulatory changes[10] present evidence that banks' capital ratios are sensitive to the changes on Turkish legislation on capital adequacy, as expected. In particular, inclusion of operational risk into calculation of capital adequacy ratio in 2007 leads to a decrease in capital adequacy ratios. Moreover, the changes in Communiqués regarding capital adequacy in 1995 and 1998 have a negative impact on capital adequacy ratios. That is, capital adequacy ratios of banks declined with these tightening regulations. Unlike the negative impacts on capital adequacy ratios, the coefficients attached to dummy variables for the inclusion of market risk and operational risk in 2002 and 2007 respectively are positive and significant in equity to asset models. This relation is plausible because banks need to increase their equity to a certain extent to meet the minimum requirements while their risk weighted assets rise due to the inclusion of market risk and operational risk into the calculation of capital. I also find

[10] I have year dummies for the following years about regulatory changes: 1995, 1998, 1999, 2002, 2005, 2007, 2012 and 2014.

some positive impact of the amendment of Banking Law in 2005 on capital ratios. This result is meaningful since the 2005 Banking Law is more aligned with Basel II criteria and there is an explicit reference to capital adequacy of banks. Introduction of Basel III capital framework and regulation regarding capital conservation buffer and countercyclical capital buffer in 2014 seem to improve banks' capital positions (see column (7)), which is expected since the quantity of capital that banks are required to meet is increased through Basel III. However, one should cautious in interpreting this finding as there is only limited period of times with three quarters for the implementation of new framework. Apart from the impact of Banking Law in 2005 and Basel III framework in 2014, one can say that tighter regulations, which do not interfere in the quantity of capital, significantly lessened the capital buffers of banks operating in Turkey over the sample period[11]. Overall, the sensitivity of banks' capital ratios to the changes on Turkish legislation on capital adequacy indicates the importance of controlling them in assessing the cyclicality of capital ratios.

In the full model, it is worth mentioning the economic significance. The coefficient -0.6017 in column (15) of Table B8 indicates that if credit to GDP gap increases 3 percent (which is the average of the credit to GDP gap in the sample period and equivalent to 6.4 standard deviations), capital

[11] Since there are many dummy variables for the changes in Turkish legislation, there might be multicollinearity problem which affects the significance of dummy variables for regulatory changes. So, I re-construct my full models by including the dummy variables for regulatory changes one-by-one to check whether there are differences in terms of the significance of dummy variables. I still observe that changes in 1995 and 1998 have significantly negative effects on capital adequacy ratio. On the other hand, the changes in 1999, 2002 and 2005 have positive effects on capital ratios. Please refer to Table C24.

adequacy ratio decreases by 1.8 percentage points (-0.6017*3) and 2.8 percentage points (-1.8/(1-0.3498)) over the long run assuming that $Capital\ ratio_{it-1} = Capital\ ratio_{it}$. This leads to 7.1 percent decrease in average capital adequacy ratio in short run (-1.8/25.2) and 11 percent drop in the long run (-2.8/25.2).

Table B9 replicates the models in Table B8 by replacing of non-deposit funding and size with deposit funding and size dummies, respectively. The results confirm that funding structure is more relevant in setting capital adequacy ratio. Moreover, the coefficients of deposit funding are significantly negative. The negative and significant sign of the deposit funding may support the hypothesis that banks seem to be using stable sources of funds for supporting their risky activities. The analysis of dummy variables based on size indicates that small banks hold significantly more capital than medium and large-sized banks, in line with my previous results. These two findings complement each other because in Turkey, small banks have less deposit funding and keep more capital buffer.

The behavior of capital ratios over the cycle and the impact of crisis on capital ratios are similar to my previous findings. I find some evidence that capital adequacy ratio is more countercyclical over both business and financial cycle during the 2000-2001 crises (see column (9)). Moreover, the test of the linear combination $Cycle2$ and $Cycle2 * Crisis_t$ suggests that capital adequacy ratio continues to be countercyclical over financial cycle during 2000-2001 crises and 2008-2009 global financial crisis.

After the 2000-2001 crises, Turkish banking sector went through many structural changes. The banking sector restructuring program established and announced on May 15, 2001. The program consisted of four blocks: (i) restructuring public banks financially and operationally; (ii) prompt resolution of banks under Savings and Deposit Insurance Fund; (iii) bringing healthy structure to private banks which were affected negatively from the crisis; (iv) recovering the regulatory framework (BRSA, 2010). Therefore, I wonder whether my conclusions differ after 2002. Considering new regulatory environment and rules for banks operating Turkey after 2001 crisis and political stability obtained after 2002, I revisit the main questions of this thesis.

Tables B(10)-B(13) summarize regression results for the subsample of 2003:Q1-2014:Q3. Baseline regressions in Table B10 show more strong evidence that both capital adequacy ratio and equity to asset ratio are significantly countercyclical over the business and financial cycles. That is, countercyclical behavior of capital ratios is more pronounced in the subsample of 2003:Q1-2014:Q3. Moreover, I observe that capital ratios react more to the movements in the financial cycle compared to business cycle. Furthermore, capital adequacy ratio is more countercyclical than equity to asset ratio in both business cycle and financial cycle models. Lagged values of capital ratios are found to be persistently positive and significant, confirming the relevance of short term adjustment costs after 2002, as well.

When I include global financial crisis dummy variable for years 2008-2009 to baseline regressions (Table B10, column (5) to (12)) , I find some evidence that capital ratios of banks increased significantly in the global financial crisis, particularly in financial cycle models. I observe that capital ratios are significantly countercyclical in normal times in most cases (see columns (9) to (12)).

In Table B11, I report regression results that basic bank characteristics are controlled. Similar to whole sample case, I find that there is a significant negative relation between capital ratios and cycle (column (1)-(2), (5) and (7)). Credit risk which is proxied with non-performing loans to total asset is a significant determinant of capital adequacy ratio, but not equity to asset ratio. These findings suggest banks having more bad loans hold significantly more capital during the period after 2002 in Turkey.

The coefficient of size is persistently negative in all models. In order to see the size effect, as mentioned before, I defined a large bank as any bank that is one of the top seven banks based on asset size, and a small bank as any bank that is in the lowest decile. According to these classifications, I find that small banks have significantly higher capital ratios than medium and large-sized banks. For equity to asset models, there is strong evidence that large banks significantly have lower equity to asset ratios than medium and small sized banks. The analysis of the impact of profitability on capital ratios during the subsample of 2003-2014 gives more powerful results than the whole sample period. The coefficient attached to return on asset is positive

and significant in all cases. Therefore, I find stronger evidence that there is a positive channel to capital by means of retained earnings.

When I control the global financial crisis, I find some evidence that capital adequacy ratio increased during the period of 2008-2009 (see columns (11) and (15)). Although the interaction term between crisis and business cycle in column (17) of Table B11 is weakly significant, the linear combination of coefficients of the cycle and interaction term suggests no significant change in the behavior of capital adequacy ratio during the global financial crisis. However, in column (23), the linear combination of financial cycle and its interaction with crisis provide some evidence that capital adequacy ratio is also countercyclical during the global financial crisis. I find no strong evidence for the change in the behavior of banks' equity to asset ratio over the cycle during the period of 2008-2009.

In Table B12-B13, I report findings of the models that I control funding structure and liquidity of the banks. I also include dummies for the changes in Turkish legislation of capital adequacy. In Table B12, I observe that both capital ratios are countercyclical over the cycle. The impact of credit risk, size and return on asset are in line with the regression results in Table B11. Similar to whole sample period analysis, the coefficient of non-deposit funding is positive and a significant determinant of capital adequacy ratio. Liquidity, on the other hand, has no significant impact on capital adequacy ratio. As mentioned, Turkish banks started to calculate particular capital for market risk in 2002. For this reason, liquid banks may not be holding more

capital in the sub-period considering the explanation for the positive coefficient of liquidity in the whole sample period that liquid banks may be holding more capital due to the market risk.

The sensitivity of capital ratios to the changes in Turkish legislation on capital adequacy is still present in the subsample period. More precisely, when I control regulatory dummies, I observe that inclusion of operational risk in 2007 into calculation of capital adequacy has a tightening impact on capital adequacy ratio of banks. The impact of amendment in Banking Law in 2005 is positive and significant. Different from the whole sample period regressions, I find some but weak evidence that full compliance to Basel II framework and introduction of Basel III capital framework improved the capital adequacy ratio of banks[12].

When I control crisis period, I observe that both capital ratios are countercyclical over the cycle during normal times. The linear combination of financial cycle and its interaction with crisis in Column (15) and (16) suggest that capital ratios is more countercyclical over the financial cycle during the global financial crisis.

As seen in Table B13, when I use deposit funding as an indicator of funding structure, I observe that deposit funding is a significant determinant of capital adequacy ratio with negative coefficient compatible with my

[12] As explained in footnote 11, I re-construct my full models by adding dummy variables for regulatory changes one-by-one to check whether there are differences in terms of the significance of the dummy variables. I only observe a significant tightening impact of inclusion of operational risk on capital adequacy ratio. Please refer to C25.

previous results. The coefficients of other variables also support the previous findings.

Finally, I include dummy variables based on ownership to answer whether the behavior of banks' capital ratios changes or not based on ownership. To this respect, I create two dummy variables: (1) *Public* that takes value of one if the bank is a public bank and zero otherwise (2) *Foreign* that takes value one if the bank is a foreign bank ad zero otherwise. Then, I interact the dummy variable with cycle measures. In particular, the empirical model is formulated as follows:

$$Capital\ ratio_{it} = \alpha_i + (\gamma + \gamma^{*} DPublic_t + \gamma^{**} DForeign_t) Cycle_t$$
$$+ \beta Capital\ ratio_{it-1} + \theta X_{it-1} + \delta Crisis_t + \varphi D_t$$
$$+ \omega_1 Public_t + \omega_2 Foreign_t + \varepsilon_{it}$$

$$where\ i = 1,2,\dots,N\ (number\ of\ banks)\ and\ t = 1,2,\dots,T\ (time)$$

Table B14 and Table B15 summarize the findings of regression analyses using whole sample of 1993:Q4-2014:Q3 and subsample of 2003:Q1-2014:Q3, respectively. The results provide some weak evidence that private banks are more countercyclical over financial cycle. Moreover, there is some evidence that capital adequacy ratio of foreign banks is more countercyclical over the business cycle in the subsample period. Apart from that, I find no significant differences in the cyclical behavior of banks based on ownership.

6.1 Robustness Check

Stolz and Wedow (2011) find that the behavior of low capitalized banks may differ over the cycle. Therefore, as a first robustness check following Brei and Gambacorta (2014), I control the impact of capital constrained banks in my full regression. In this respect, I create a dummy variable called "Constrained" which takes value 1 for banks whose capital buffer is in the 10^{th} percentile or below. As seen in Table C17-C18, capital ratios are still significantly more countercyclical over the financial cycle in normal times after including the dummy variable for capital constrained banks and its interaction with the cycle into my regression.

As a second robustness check, I apply different long panel data methodologies such as pooled OLS with panel-corrected standard errors, feasible generalized least squares and fixed effects regression under various assumptions about the autocorrelation in error terms and heteroskedasticity and correlation across panels. The results are reported in Table C18-C23. Overall, it is observed that countercyclical behavior of capital ratios is even reinforced using different methodologies. My main findings are also still valid. Capital adequacy ratio is more countercyclical than equity to asset ratio in most cases. Capital ratios react more to the movements in financial cycle. The coefficients of bank characteristics and regulatory changes are similar to my previous results.

CHAPTER 7

CONCLUSION

In this thesis, the behavior of capital ratios of banks in Turkey over the business and financial cycle is examined for the period of 1993:Q4-2014:Q3. The analyses are also revisited in the subsample period of 2003:Q1-2014:Q3 as Turkish banking sector went through many structural changes after 2000-2001 crises. Two capital ratios, namely, capital adequacy ratio measured as capital to risk weighted assets and balance sheet leverage ratio measured as equity to asset ratio are used in the analyses. Business cycle is measured as real GDP growth while financial cycle as private credit to GDP gap.

This study tries to answer the following research questions: (1) How do capital ratios of banks operating in Turkey behave over the cycle during 1993:Q4-2014:Q3? (2) How does this relation change over the sub-period of 2003:Q1-2014:Q3. (3) Does the behavior of banks' capital ratio vary according to the definition of capital ratios (capital adequacy

ratio vs. balance sheet leverage ratio) and cycle (business cycle vs. financial cycle)? (4) Does the behavior of banks' capital ratios change during crisis periods? (5) How do capital ratios of banks change according to the bank characteristics? (6) Are banks' capital ratios sensitive to the changes in banking regulations?

Considering the sample period of 1993:Q4-2014:Q3, I find negative and significant relation between capital ratios and business cycle. However, the negative relation between capital ratios and business cycle vanishes as I control crisis periods. Controlling the bank specific characteristics and regulatory changes, I find that, in normal times, banks' capital ratios are significantly countercyclical over the financial cycle but not over the business cycle.

Countercyclical behavior of capital ratios is found to be more pronounced over both business and financial cycle in the subsample of 2003:Q1-2014:Q3. Furthermore, capital ratios react more to the movements in the financial cycle than business cycle. Similar to whole sample results, capital adequacy ratio continues to behave more countercyclical than equity to asset ratio over both cycle measures. The stronger negative relation between capital ratios and cycle measures in the subsample of 2003:Q1-2014:Q3 may suggest that Basel II have more pro-cyclical effects in terms of amplifying fluctuations in cycles than Basel I as in Repullo and Suarez (2013).

I find that banks in Turkey, in general, increase their capital buffers during the volatile periods. I find some evidence that capital adequacy ratio

is more countercyclical during the local financial crisis particularly in 2000-2001 crises. This result should be interpreted cautiously and considered as in line with expectations because after 2000-2001 crises, the efforts of extra capital injections to restructure surviving banks in Turkey increased capital buffers of all banks as the part of the Bank Capital Strengthening Program in 2001 (Banking Sector Evaluation Report, 2004). I also have evidence that capital adequacy ratios are more countercyclical over the financial cycle during the global financial crisis.

Although significant negative relation between capital buffer and business cycle is very much supporting the principle of "leaning against the wind" or previous evidence of "bad loans are provided in good times", these findings suggest that banking sector in Turkey may be more vulnerable to any systemic risk. Turkish banks do not consider the nature of cycle and underestimate the risks during good times, which suggests the shortsightedness of banks.

Lagged values of capital ratios are found to be persistently positive and significant, which indicates that the relevance of adjustment costs of capital in the short term. Regarding the bank specific characteristics, there is a positive relationship between credit risk and capital ratios suggesting that banks in general are acting more prudent in Turkey during the sample period. Large banks have lower capital ratios in line with the too-big-to-fail hypothesis. I find evidence that there is a positive channel to capital accumulation via retained earnings particularly during the subsample of

2003:Q1-2014:Q3. In terms of funding structure, banks that use more non-deposit funding (deposit funding) have higher (lower) capital ratios, in particular when capital adequacy ratio is considered. Unlike my expectations, liquidity of banks positively affects the capital ratios suggesting again more prudent behavior of banks in Turkey.

I present evidence that the capital ratios of banks are sensitive to the changes in Turkish legislation on capital adequacy. In particular, tighter regulations regarding the banks' capital adequacy seem to lessen the capital buffers of banks operating in Turkey. This finding suggests the possibility that the capital regulations in Turkey may amplify the business and financial cycles. On the other hand, the amendment of Banking Law in 2005 and Basel III framework improved the capital positions of banks.

Banking Regulation and Supervision Agency published a new regulation regarding countercyclical capital buffer in November 2013 which is introduced within the scope of Basel III Framework. The principles and procedures for the calculation of countercyclical capital buffer have not been determined yet. However, my results support the relevance of this regulation for the Turkish banking sector, which may mitigate the pro-cyclical effects of capital ratios.

In the future extensions of this study, the effects of merger and acquisitions should be controlled, as well. Turkish banks especially following the 2000-2001 crisis have experienced many mergers. The balance sheet positions of banks may change based on acquiring a sound bank or poor

bank. Therefore, it is important to control the mergers in assessing the cyclical movement in capital ratios in future.

Basel III brings a new minimum standard called leverage ratio which is calculated as Tier 1 capital over an exposure measure of on balance sheet and off balance sheet items. Leverage ratio is non-risk based and considered as a backstop measure to the risk-based capital adequacy ratio (BCBS, 2014). Although cyclical impacts of Basel capital framework is tried to be addressed within the Basel III capital framework, the leverage ratio requirement introduced in Basel III framework may also have pro-cyclical effects on the economy. Leverage ratio requirement started to be implemented in January 2015 in Turkey. As a further research, whether the new leverage ratio requirement has pro-cyclical effects on the economy could worth to investigate when data are available.

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APPENDICES

APPENDIX A. DESCRIPTIVE STATISTICS

Table A1. Summary Statistics for Selected Variables

VARIABLES	(1) N	(2) mean	(3) sd	(4) max	(5) min	(6) p10	(7) p50	(8) p90
CAR	3106	0.252	0.221	1.308	0.056	0.092	0.167	0.546
LEV	3106	0.153	0.109	0.935	0.014	0.069	0.121	0.262
Cycle1	3106	0.041	0.057	0.138	-0.147	-0.054	0.056	0.098
Cycle2	3106	0.030	0.064	0.161	-0.068	-0.048	0.021	0.119
RWA to Total Assets	3106	0.670	0.309	5.816	0.035	0.316	0.674	0.952
NPL to Total Loans*	3068	0.057	0.095	1.000	0.000	0.000	0.028	0.131
Provisions to Total Loans	3068	0.041	0.079	1.000	0.000	0.000	0.018	0.091
Size	3106	12.484	2.043	16.616	5.306	9.950	12.440	15.303
Total Assets (in nominal terms)	3106	12,061.933	31,895.079	238,347.000	0.040	8.466	542.837	34,861.801
Total Assets (in real terms)	3106	1,429.959	2,771.166	16,456.355	0.202	20.961	252.804	4,426.755
ROA	3087	0.031	0.068	0.672	-1.326	-0.004	0.022	0.096
Non-Deposit Funding	3106	0.370	0.222	0.958	0.018	0.129	0.307	0.740
Deposit Funding**	3106	0.477	0.244	0.926	0.000	0.070	0.552	0.751
Liquidity	3106	0.356	0.203	0.947	0.002	0.123	0.314	0.669
Non-interest Income Share	3087	0.213	0.194	1.474	-5.333	0.045	0.182	0.433

*The NPL ratio have a maximum value of 1 percent due to the some banks included in the sample just before transferred to SDIF or merged with another bank. **Deposit funding has a minimum value of 0 percent due to the foreign bank branches in Turkey.

Table A2. Summary Statistics across Banking Groups

VARIABLES	High ROA	Low ROA	Difference	Large	Small	Difference
CAR	0.459	0.255	***	0.210	0.561	***
LEV	0.281	0.152	***	0.111	0.313	***
RWA to Total Assets	0.707	0.623	***	0.594	0.631	***
NPL to Total Loans	0.057	0.103	***	0.063	0.140	***
Provisions to Total Loans	0.046	0.067	***	0.047	0.100	***
Size	11.290	11.239		15.366	9.170	***
Total Assets (in nominal terms)	4,517.280	2,228.232	***	51,883.506	108.277	***
ROA	0.112	-0.055	***	0.027	0.008	***
Non-Deposit Funding	0.439	0.316	***	0.255	0.435	***
Deposit Funding	0.281	0.532	***	0.635	0.252	***
Liquidity	0.435	0.341	***	0.268	0.524	***
Non-interest Income Share	0.228	0.223		0.189	0.273	***
Total Assets (in real terms)	544.015	521.805		5,948.507	15.161	***

Note: Large banks denote the top seven banks in terms of asset size, as of December 2014 in Turkey. Small banks refer to the banks in the lowest decile based on size. Similarly, for other classifications, "high" category refers to the banks in the highest decile of the relevant variable, while "low" category refers to the banks in the lowest decile of the relevant variable. ***, **, ** show that means are significantly different before and after 2002 at the 1%, 5% and 10% level across defined banking groups based on t-test.

Table A2. Summary Statistics across Banking Groups (cont'd)

VARIABLES	High Wholesale Funding	Low Wholesale Funding	Difference	High Diversity	Low Diversity	Difference
CAR	0.331	0.276	***	0.290	0.356	***
LEV	0.125	0.162	***	0.187	0.159	***
RWA to Total Assets	0.491	0.634	***	0.770	0.525	***
NPL to Total Loans	0.035	0.072	***	0.075	0.059	***
Provisions to Total Loans	0.027	0.054	***	0.060	0.045	***
Size	11.090	12.276	***	11.498	12.126	***
Total Assets (in nominal terms)	571.209	10,863.643	***	5,334.624	8,742.225	***
ROA	0.040	0.000	***	0.029	0.036	
Non-Deposit Funding	0.796	0.103	***	0.424	0.406	
Deposit Funding	0.079	0.736	***	0.389	0.435	***
Liquidity	0.494	0.345	***	0.394	0.420	***
Non-interest Income Share	0.199	0.197		0.456	0.038	***
Total Assets (in real terms)	98.691	1,343.320	***	670.334	1,237.317	***

Note: Diversity is measured as the non-interest income share in total income. Large banks denote the top seven banks in terms of asset size, as of December 2014 in Turkey. Small banks refer to the banks in the lowest decile based on size. Similarly, for other classifications, "high" category refers to the banks in the highest decile of the relevant variable, while "low" category refers to the banks in the lowest decile of the relevant variable. ***, **, ** show that means are significantly different before and after 2002 at the 1%, 5% and 10% level across defined banking groups based on t-test.

Table A2. Summary Statistics across Banking Groups (cont'd)

VARIABLES	High Provision	Low Provision	Difference	High NPL Ratio	Low NPL Ratio	Difference
CAR	0.461	0.405	***	0.451	0.412	***
LEV	0.247	0.202	***	0.238	0.203	***
RWA to Total Assets	0.647	0.576	***	0.624	0.567	***
NPL to Total Loans	0.223	0.002	***	0.242	0.000	***
Provisions to Total Loans	0.187	0.000	***	0.177	0.000	***
Size	11.097	10.919	***	11.169	10.908	***
Total Assets (in nominal terms)	3,903.748	742.626	***	4,067.599	693.534	***
ROA	0.029	0.052	***	0.021	0.054	***
Non-Deposit Funding	0.382	0.542	***	0.380	0.554	***
Deposit Funding	0.372	0.256	***	0.382	0.243	***
Liquidity	0.483	0.463		0.457	0.465	
Non-interest Income Share	0.243	0.230		0.242	0.231	
Total Assets (in real terms)	667.523	114.898	***	742.568	109.643	***

Note: Large banks denote the top seven banks in terms of asset size, as of December 2014 in Turkey. Small banks refer to the banks in the lowest decile based on size. Similarly, for other classifications, "high" category refers to the banks in the highest decile of the relevant variable, while "low" category refers to the banks in the lowest decile of the relevant variable. ***, **, ** show that means are significantly different before and after 2002 at the 1%, 5% and 10% level across defined banking groups based on t-test.

Table A2. Summary Statistics across Banking Groups (cont'd)

VARIABLES	Public Banks	Private Banks	Foreign Banks	Difference (Public-Private)	Difference (Private-Foreign)	Difference (Public-Foreign)
CAR	0.242	0.186	0.337	***	***	***
LEV	0.096	0.135	0.186	***	***	***
RWA to Total Assets	0.495	0.706	0.660	***	***	***
NPL to Total Loans	0.094	0.041	0.070	***	***	***
Provisions to Total Loans	0.070	0.025	0.054	***	***	***
Size	15.179	12.943	11.361	***	***	***
Total Assets (in nominal terms)	45,109.383	13,219.503	3,824.406	***	***	***
ROA	0.027	0.029	0.033		***	**
Non-Deposit Funding	0.222	0.283	0.509	***	***	***
Deposit Funding	0.681	0.582	0.305	***	***	***
Liquidity	0.253	0.307	0.439	***	***	***
Non-interest Income Share	0.156	0.211	0.226	***	***	***
Total Assets (in real terms)	5,518.286	1,598.118	380.048	***	***	***

Note: Large banks denote the top seven banks in terms of asset size, as of December 2014 in Turkey. Small banks refer to the banks in the lowest decile based on size. Similarly, for other classifications, "high" category refers to the banks in the highest decile of the relevant variable, while "low" category refers to the banks in the lowest decile of the relevant variable. ***, **, ** show that means are significantly different before and after 2002 at the 1%, 5% and 10% level across defined banking groups based on t-test.

Table A3. Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) CAR	1														
(2) LEV	0.66***	1													
(3) Cycle1	0.00	-0.04*	1												
(4) Cycle2	-0.01	0.08***	0.09***	1											
(5) RWA to Total Assets	-0.40***	0.15***	-0.02	0.20***	1										
(6) NPL to Total Loans	0.28***	0.18***	-0.04*	-0.11***	-0.11***	1									
(7) Provisions to Total Loans	0.28***	0.15***	0.01	-0.08***	-0.11***	0.90***	1								
(8) Size	-0.42***	-0.48***	0.03	0.25***	0.03	-0.18***	-0.16***	1							
(9) Total Assets (nominal)	-0.11***	-0.13***	0.01	0.42***	0.06***	-0.06**	-0.03	0.59***	1						
(10) Total Assets (real)	-0.13***	-0.19***	0.01	0.32***	-0.01	-0.03	-0.02	0.72***	0.94***	1					
(11) ROA	0.04*	0.14***	-0.03	-0.06***	0.11***	-0.19***	-0.13***	-0.03	-0.07***	-0.07***	1				
(12) Non-Deposit Funding	0.15***	-0.03	-0.01	-0.06**	-0.15***	-0.04*	-0.02	-0.30***	-0.15***	-0.22***	0.15***	1			
(13) Deposit Funding	-0.43***	-0.42***	0.03	0.02	0.07***	-0.03	-0.05*	0.49***	0.19***	0.28***	-0.19***	-0.89***	1		
(14) Liquidity	0.30***	0.21***	-0.04*	-0.20***	-0.21***	0.16***	0.17***	-0.47***	-0.21***	-0.25***	0.19***	0.32***	-0.38***	1	
(15) Non-interest Income Share	-0.03	0.09***	0.09***	0.11***	0.22***	0.04*	0.05**	-0.14***	-0.02	-0.06***	0.08***	-0.06**	0.01	0.04*	1

Note: ***, **, ** show significance at the 1%, 5% and 10% level

Table A4. Summary Statistics for Selected Variables Before 2002

VARIABLES	(1) N	(2) mean	(3) sd	(4) max	(5) min	(6) p10	(7) p50	(8) p90
CAR	1690	0.227	0.209	1.305	0.056	0.081	0.152	0.474
LEV	1690	0.143	0.099	0.715	0.014	0.062	0.115	0.256
Cycle1	1690	0.033	0.061	0.138	-0.114	-0.056	0.062	0.094
Cycle2	1690	-0.009	0.033	0.047	-0.068	-0.055	-0.005	0.039
RWA to Total Assets	1690	0.664	0.359	5.816	0.035	0.294	0.649	0.957
NPL to Total Loans	1686	0.057	0.101	0.955	0.000	0.000	0.021	0.134
Provisions to Total Loans	1686	0.037	0.085	0.923	0.000	0.000	0.011	0.079
Size	1690	11.958	1.847	15.868	5.306	9.668	12.028	14.536
Total Assets (in nominal terms)	1690	1,100.682	3,415.641	37,689.012	0.040	3.197	96.466	2,262.672
Total Assets (in real terms)	1690	627.836	1,156.466	7,790.603	0.202	15.810	167.412	2,054.910
ROA	1678	0.043	0.087	0.672	-1.326	-0.009	0.039	0.123
Non-Deposit Funding	1690	0.378	0.234	0.958	0.018	0.112	0.317	0.751
Deposit Funding	1690	0.479	0.251	0.926	0.000	0.073	0.532	0.780
Liquidity	1690	0.407	0.196	0.947	0.018	0.172	0.382	0.699
Non-interest Income Share	1678	0.217	0.248	1.474	-5.333	0.028	0.149	0.542

Table A5. Summary Statistics for Selected Variables After 2002

VARIABLES	(1) N	(2) mean	(3) sd	(4) max	(5) min	(6) p10	(7) p50	(8) p90
CAR	1416	0.283***	0.231	1.308	0.072	0.133	0.177	0.632
LEV	1416	0.163***	0.119	0.935	0.037	0.084	0.127	0.269
Cycle1	1416	0.050***	0.051	0.126	-0.147	0.009	0.053	0.100
Cycle2	1416	0.076***	0.061	0.161	-0.060	-0.028	0.097	0.141
RWA to Total Assets	1416	0.676***	0.236	1.317	0.097	0.337	0.716	0.949
NPL to Total Loans	1382	0.058	0.086	1.000	0.000	0.001	0.036	0.128
Provisions to Total Loans	1382	0.045***	0.070	1.000	0.000	0.000	0.025	0.106
Size	1416	13.112***	2.088	16.616	6.766	10.493	13.059	15.992
Total Assets (in nominal terms)	1416	25,144.216***	43,630.351	238,347.000	4.986	309.101	4,251.115	85,597.008
Total Assets (in real terms)	1416	2,387.296***	3,683.639	16,456.355	0.868	36.050	469.504	8,815.712
ROA	1409	0.016***	0.029	0.186	-0.364	-0.003	0.017	0.035
Non-Deposit Funding	1416	0.362***	0.206	0.958	0.021	0.154	0.299	0.725
Deposit Funding	1416	0.475**	0.236	0.865	0.000	0.068	0.561	0.707
Liquidity	1416	0.296***	0.195	0.900	0.002	0.090	0.241	0.615
Non-interest Income Share	1409	0.208**	0.097	0.804	-0.147	0.095	0.199	0.322

Note: ***, **, ** show that means are significantly different before and after 2002 at the 1%, 5% and 10% level.

APPENDICES

APPENDIX B. ECONOMETRIC RESULTS

Table B6. Baseline Regressions

VARIABLES	(1) CAR	(2) Equity to asset	(3) CAR	(4) Equity to asset
CAR = L,	0.6563***		0.5835***	
	(0.072)		(0.130)	
LEV = L,		0.7825***		0.8138***
		(0.120)		(0.072)
Cycle1	-0.0979***	-0.0552**		
	(0.037)	(0.027)		
Cycle2			-0.0185	-0.0094
			(0.091)	(0.024)
Constant	0.0795***	0.0308*	0.0907***	0.0256**
	(0.018)	(0.017)	(0.030)	(0.010)
Observations	2,964	2,964	2,964	2,964
AR(2)	0.514	0.215	0.467	0.200
Hansen	0.617	0.132	0.190	0.704

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

Tablo B6. Baseline Regressions (cont'd)

VARIABLES	(5) CAR	(6) Equity to asset	(7) CAR	(8) Equity to asset	(9) CAR	(10) Equity to asset	(11) CAR	(12) Equity to asset
CAR = L,	0.6147***		0.5527***		0.6972***		0.6621***	
	(0.088)		(0.125)		(0.096)		(0.093)	
LEV = L,		0.7604***		0.8374***		0.8406***		0.6999***
		(0.103)		(0.092)		(0.104)		(0.109)
Cycle1	-0.0432	-0.0294			-0.0121	-0.0412		
	(0.046)	(0.028)			(0.051)	(0.036)		
Cycle1*Crisis1					-0.2248	-0.0437		
					(0.358)	(0.162)		
Cycle1*Crisis2					-0.1847**	-0.0175		
					(0.088)	(0.056)		
Cycle1*Crisis3					-0.1755	0.2253		
					(0.222)	(0.219)		
Cycle2			-0.0340	-0.0102			-0.0747	-0.0450
			(0.089)	(0.022)			(0.092)	(0.045)
Cycle2*Crisis1							3.4219*	0.1170
							(1.974)	(1.124)
Cycle2*Crisis2							0.4772	-0.0337
							(0.338)	(0.158)
Cycle2*Crisis3							0.0120	0.0639
							(0.120)	(0.123)
Crisis1	0.0148	0.0184*	0.0047	0.0231**	0.0070	0.0158	0.0110	0.0205**
	(0.014)	(0.011)	(0.017)	(0.009)	(0.020)	(0.014)	(0.014)	(0.009)
Crisis2	-0.0018	0.0050	-0.0043	0.0063*	0.0015	0.0055	0.0064	0.0016
	(0.007)	(0.005)	(0.006)	(0.003)	(0.007)	(0.004)	(0.009)	(0.005)
Crisis3	0.0158*	0.0044	0.0165**	0.0046*	0.0081	0.0078	0.0143**	0.0118*
	(0.009)	(0.004)	(0.008)	(0.003)	(0.008)	(0.005)	(0.006)	(0.006)
Constant	0.0870***	0.0313**	0.0973***	0.0195	0.0695***	0.0222	0.0766***	0.0413**
	(0.021)	(0.014)	(0.029)	(0.013)	(0.023)	(0.014)	(0.023)	(0.017)
Observations	2,964	2,964	2,964	2,964	2,964	2,964	2,964	2,964
AR(2)	0.473	0.216	0.426	0.193	0.550	0.202	0.510	0.213
Hansen	0.548	0.190	0.296	0.542	0.317	0.333	0.122	0.118

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The linear combination test for column (9): The linear combination Cycle1+Cycle1*Crisis2 is statistically significant with a p-value of 0.024. (11): The linear combination Cycle1+Cycle1*Crisis 1 is statistically weakly significant with a p-value of 0.086.

Table B7. Regressions Controlling for Basic Bank Characteristics

VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset	(5) CAR	(6) Equity to Asset	(7) CAR	(8) Equity to Asset
CAR = L,	0.6004***		0.5377***		0.5746***		0.6388***	
	(0.108)		(0.140)		(0.098)		(0.105)	
LEV = L,		0.6939***		0.6803***		0.6721***		0.6898***
		(0.123)		(0.141)		(0.104)		(0.102)
Cycle1	-0.0919**	-0.0475**			-0.0754*	-0.0503**		
	(0.045)	(0.021)			(0.043)	(0.025)		
Cycle2			0.0370	0.0051			-0.0003	0.0009
			(0.130)	(0.028)			(0.091)	(0.027)
risk = L,	0.2739**	0.1175*	0.2533***	0.1396*	0.2009*	0.0945	0.1879**	0.0845
	(0.108)	(0.071)	(0.097)	(0.081)	(0.103)	(0.061)	(0.078)	(0.068)
Size = L,	-0.0128**	-0.0026	-0.0127	-0.0029				
	(0.006)	(0.004)	(0.008)	(0.004)				
large					-0.0028	-0.0040	-0.0044	-0.0048
					(0.013)	(0.007)	(0.015)	(0.006)
small					0.1107***	0.0582**	0.0862*	0.0615**
					(0.036)	(0.025)	(0.044)	(0.027)
ROA = L,	0.1119	0.0069	0.0377	0.0432	0.1351	0.0411	0.0371	0.0724
	(0.095)	(0.040)	(0.096)	(0.041)	(0.088)	(0.043)	(0.091)	(0.045)
Constant	0.2399**	0.0695	0.2442*	0.0718	0.0775***	0.0363***	0.0605***	0.0331**
	(0.102)	(0.061)	(0.130)	(0.066)	(0.021)	(0.014)	(0.023)	(0.014)
Observations	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914
AR(2)	0.238	0.815	0.201	0.798	0.256	0.784	0.269	0.729
Hansen	0.371	0.276	0.114	0.355	0.527	0.224	0.237	0.564

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

Table B7. Regressions Controlling for Basic Bank Characteristics (cont'd)

VARIABLES	(9) CAR	(10) Equity to Asset	(11) CAR	(12) Equity to Asset	(13) CAR	(14) Equity to Asset	(15) CAR	(16) Equity to Asset
CAR = L,	0.5517***		0.5563***		0.5716***		0.6092***	
	(0.116)		(0.125)		(0.104)		(0.103)	
LEV = L,		0.6570***		0.6782***		0.6294***		0.6644***
		(0.137)		(0.144)		(0.101)		(0.109)
Cycle1	-0.0891	-0.0105			-0.0657	-0.0115		
	(0.055)	(0.029)			(0.056)	(0.030)		
Cycle2			0.0077	0.0039			-0.0091	0.0049
			(0.108)	(0.030)			(0.085)	(0.029)
risk = L,	0.2943**	0.1323*	0.2428**	0.1324*	0.2143**	0.0987*	0.1799***	0.0718
	(0.119)	(0.071)	(0.096)	(0.077)	(0.109)	(0.059)	(0.068)	(0.065)
Size = L,	-0.0162**	-0.0032	-0.0119*	-0.0028				
	(0.007)	(0.004)	(0.007)	(0.004)				
large					-0.0033	-0.0046	-0.0021	-0.0052
					(0.013)	(0.008)	(0.015)	(0.007)
small					0.1114***	0.0656***	0.0967**	0.0663**
					(0.036)	(0.023)	(0.043)	(0.029)
ROA = L,	0.1400	0.0125	0.0283	0.0326	0.1444	0.0503	0.0449	0.0661
	(0.099)	(0.042)	(0.095)	(0.043)	(0.093)	(0.046)	(0.087)	(0.048)
Crisis1	-0.0235	0.0175*	-0.0101	0.0228**	-0.0026	0.0198**	0.0117	0.0261***
	(0.016)	(0.010)	(0.020)	(0.009)	(0.014)	(0.010)	(0.017)	(0.008)
Crisis2	-0.0009	0.0041	-0.0026	0.0023	0.0025	0.0038	-0.0041	0.0017
	(0.008)	(0.004)	(0.009)	(0.003)	(0.007)	(0.004)	(0.008)	(0.003)
Crisis3	0.0236*	0.0092	0.0161*	0.0091	0.0172*	0.0070	0.0108	0.0070**
	(0.013)	(0.007)	(0.010)	(0.006)	(0.010)	(0.005)	(0.007)	(0.003)
Constant	0.2907**	0.0801	0.2344**	0.0711	0.0745***	0.0390***	0.0673***	0.0359**
	(0.113)	(0.069)	(0.114)	(0.069)	(0.020)	(0.012)	(0.023)	(0.014)
Observations	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914
AR(2)	0.220	0.842	0.203	0.806	0.254	0.794	0.256	0.734
Hansen	0.391	0.230	0.100	0.313	0.500	0.338	0.242	0.566

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

Table B7. Regressions Controlling for Basic Bank Characteristics (cont'd)

VARIABLES	(17) CAR	(18) Equity to Asset	(19) CAR	(20) Equity to Asset	(21) CAR	(22) Equity to Asset	(23) CAR	(24) Equity to Asset
CAR = L,	0.4805***		0.4833***		0.5126***		0.5127***	
	(0.106)		(0.088)		(0.105)		(0.080)	
LEV = L,		0.5482***		0.6057***		0.5507***		0.5711***
		(0.075)		(0.092)		(0.064)		(0.079)
Cycle1	0.0352	-0.0042			0.0381	0.0113		
	(0.060)	(0.025)			(0.060)	(0.025)		
Cycle1*Crisis1	-0.4050	-0.1155			-0.4012	-0.1454		
	(0.283)	(0.140)			(0.247)	(0.134)		
Cycle1*Crisis2	-0.1676	-0.0149			-0.1800	-0.0185		
	(0.137)	(0.064)			(0.128)	(0.058)		
Cycle1*Crisis3	-0.2366	-0.0481			-0.2781	-0.0762		
	(0.231)	(0.181)			(0.230)	(0.182)		
Cycle2			0.0007	0.0128			-0.0690	-0.0015
			(0.120)	(0.041)			(0.094)	(0.034)
Cycle2*Crisis1			2.9052	-0.1064			3.2798	0.0387
			(2.348)	(1.114)			(2.185)	(1.072)
Cycle2*Crisis2			0.5387	-0.0602			0.5694	-0.0456
			(0.454)	(0.156)			(0.405)	(0.167)
Cycle2*Crisis3			-0.0154	0.0186			-0.0011	0.0083
			(0.085)	(0.094)			(0.075)	(0.090)
risk = L,	0.3463***	0.1976***	0.4063***	0.2025***	0.2904***	0.1667***	0.3407***	0.1692***
	(0.102)	(0.062)	(0.105)	(0.070)	(0.087)	(0.055)	(0.101)	(0.062)
Size = L,	-0.0148**	-0.0066**	-0.0158**	-0.0047				
	(0.007)	(0.003)	(0.007)	(0.003)				
large					0.0023	-0.0117	-0.0091	-0.0098
					(0.017)	(0.009)	(0.017)	(0.008)
small					0.1157***	0.0615***	0.1008***	0.0595***
					(0.044)	(0.019)	(0.037)	(0.018)
ROA = L,	0.0609	0.0698	0.0893	0.0639	0.1031	0.0849*	0.1304	0.0882*
	(0.098)	(0.045)	(0.104)	(0.047)	(0.112)	(0.047)	(0.097)	(0.046)
Crisis1	-0.0258	0.0185**	-0.0097	0.0164*	-0.0090	0.0244***	0.0077	0.0222**
	(0.018)	(0.009)	(0.016)	(0.009)	(0.015)	(0.009)	(0.014)	(0.009)
Crisis2	0.0001	-0.0001	0.0063	0.0014	0.0046	0.0003	0.0054	0.0004
	(0.011)	(0.004)	(0.015)	(0.006)	(0.009)	(0.004)	(0.013)	(0.005)
Crisis3	0.0217	0.0155**	0.0235***	0.0126**	0.0137	0.0138**	0.0191***	0.0121**
	(0.014)	(0.008)	(0.008)	(0.006)	(0.010)	(0.006)	(0.007)	(0.005)
Constant	0.2837**	0.1325***	0.2938***	0.0999**	0.0758***	0.0465***	0.0819***	0.0439***
	(0.112)	(0.050)	(0.106)	(0.051)	(0.017)	(0.008)	(0.019)	(0.011)
Observations	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914
AR(2)	0.174	0.998	0.162	0.889	0.231	0.958	0.197	0.896
Hansen	0.154	0.168	0.083	0.115	0.197	0.216	0.142	0.149

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

Table B8. Regressions Controlling for Other Bank Characteristics

VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset	(5) CAR	(6) Equity to Asset	(7) CAR	(8) Equity to Asset
CAR = L,	0.5482***		0.5269***		0.5237***		0.5324***	
	(0.126)		(0.149)		(0.143)		(0.159)	
LEV = L,		0.6486***		0.7036***		0.5862***		0.5128***
		(0.150)		(0.127)		(0.141)		(0.156)
Cycle1	-0.0990*	-0.0139			-0.0656	-0.0209		
	(0.057)	(0.030)			(0.084)	(0.036)		
Cycle2			0.0516	0.0247			-0.3628**	-0.1422
			(0.133)	(0.025)			(0.178)	(0.105)
risk = L,	0.2629**	0.1339*	0.2582***	0.1206	0.2564***	0.1181*	0.2432**	0.1143*
	(0.121)	(0.070)	(0.099)	(0.074)	(0.093)	(0.065)	(0.105)	(0.062)
Size = L,	-0.0113*	-0.0017	-0.0094	-0.0005	-0.0150*	-0.0056	-0.0118	-0.0084
	(0.006)	(0.005)	(0.008)	(0.004)	(0.009)	(0.005)	(0.011)	(0.005)
ROA = L,	0.0931	-0.0061	0.0127	0.0125	0.2086**	0.0580	0.1500	0.1254*
	(0.103)	(0.044)	(0.099)	(0.041)	(0.101)	(0.063)	(0.124)	(0.070)
Non-Deposit Funding = L,	0.0598**	0.0170	0.0516	0.0216	0.0630**	0.0046	0.0409	-0.0058
	(0.027)	(0.020)	(0.036)	(0.013)	(0.028)	(0.021)	(0.031)	(0.020)
Liquidity = L,	0.0741*	0.0382**	0.0654	0.0353***	0.0767**	0.0394**	0.0752	0.0377***
	(0.044)	(0.017)	(0.052)	(0.013)	(0.036)	(0.017)	(0.048)	(0.014)
D1995					-0.0421*	-0.0034	-0.0209	0.0008
					(0.026)	(0.012)	(0.024)	(0.006)
D1998					-0.0460**	-0.0008	-0.0466*	-0.0050
					(0.021)	(0.008)	(0.026)	(0.008)
D1999					-0.0053	0.0014	0.0019	0.0059
					(0.011)	(0.004)	(0.012)	(0.004)
D2002					0.0349	0.0164	0.0125	0.0164**
					(0.030)	(0.010)	(0.034)	(0.007)
D2005					0.0112	-0.0008	0.0403	0.0138
					(0.016)	(0.007)	(0.025)	(0.013)
D2007					-0.0263***	0.0105	-0.0051	0.0182*
					(0.010)	(0.007)	(0.011)	(0.010)
D2012					-0.0053	0.0001	0.0120	0.0028
					(0.008)	(0.006)	(0.008)	(0.005)

D2014					0.0036	-0.0002	0.0238**	0.0058
					(0.009)	(0.008)	(0.011)	(0.007)
Crisis1	-0.0283*	0.0163	-0.0096	0.0205**	-0.0513**	0.0206*	-0.0275	0.0291***
	(0.016)	(0.011)	(0.019)	(0.009)	(0.022)	(0.012)	(0.025)	(0.008)
Crisis2	-0.0087	0.0017	-0.0024	-0.0001	0.0129	0.0092**	0.0074	0.0082*
	(0.009)	(0.005)	(0.009)	(0.004)	(0.008)	(0.005)	(0.007)	(0.005)
Crisis3	0.0230*	0.0107	0.0166*	0.0071	0.0140	0.0018	0.0167***	0.0021
	(0.013)	(0.008)	(0.010)	(0.005)	(0.009)	(0.003)	(0.004)	(0.002)
Constant	0.1867**	0.0429	0.1634	0.0182	0.2379*	0.0945	0.1946	0.1364
	(0.091)	(0.089)	(0.116)	(0.068)	(0.125)	(0.091)	(0.134)	(0.089)
Observations	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914
AR(2)	0.181	0.988	0.169	0.915	0.163	0.963	0.174	0.921
Hansen	0.366	0.106	0.103	0.462	0.431	0.140	0.299	0.636

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

Table B8. Regressions Controlling for Other Bank Characteristics (cont'd)

VARIABLES	(9) CAR	(10) Equity to Asset	(11) CAR	(12) Equity to Asset	(13) CAR	(14) Equity to Asset	(15) CAR	(16) Equity to Asset
CAR = L,	0.4712***		0.4922***		0.3336***		0.3498***	
	(0.113)		(0.092)		(0.127)		(0.096)	
LEV = L,		0.5566***		0.6056***		0.4990***		0.4663***
		(0.076)		(0.088)		(0.096)		(0.120)
Cycle1	0.0629	-0.0015			-0.0250	-0.0341		
	(0.068)	(0.025)			(0.060)	(0.024)		
Cycle1*Crisis1	-0.4250	-0.1125			-0.3043	-0.1089		
	(0.297)	(0.133)			(0.277)	(0.131)		
Cycle1*Crisis2	-0.2919*	-0.0478			-0.0479	-0.1343		
	(0.165)	(0.066)			(0.248)	(0.125)		
Cycle1*Crisis3	-0.3733	-0.0607			-0.1624	0.0072		
	(0.239)	(0.197)			(0.258)	(0.171)		
Cycle2			0.0227	0.0248			-0.6017***	-0.2577**
			(0.120)	(0.039)			(0.196)	(0.104)
Cycle2*Crisis1			2.7837	-0.2579			3.1000	0.2148
			(2.396)	(1.081)			(2.290)	(1.172)
Cycle2*Crisis2			0.6625	-0.0214			-0.9441	0.1137
			(0.457)	(0.153)			(0.842)	(0.261)
Cycle2*Crisis3			-0.0192	0.0140			-0.0419	-0.0189
			(0.085)	(0.089)			(0.081)	(0.091)
risk = L,	0.3722***	0.1870***	0.4043***	0.1991***	0.3691***	0.1472***	0.3263***	0.1695***
	(0.107)	(0.068)	(0.103)	(0.068)	(0.111)	(0.056)	(0.114)	(0.064)
Size = L,	-0.0107	-0.0049	-0.0116*	-0.0029	-0.0210**	-0.0095**	-0.0214**	-0.0089*
	(0.007)	(0.003)	(0.007)	(0.003)	(0.009)	(0.005)	(0.009)	(0.005)
ROA = L,	0.0334	0.0496	0.0395	0.0458	0.2661**	0.0974*	0.2537**	0.1404**
	(0.104)	(0.046)	(0.105)	(0.046)	(0.120)	(0.058)	(0.109)	(0.068)
Non-Deposit Funding = L,	0.0632	0.0083	0.0594*	0.0160	0.0364	-0.0069	0.0292	-0.0072
	(0.044)	(0.021)	(0.036)	(0.019)	(0.042)	(0.022)	(0.040)	(0.026)
Liquidity = L,	0.0707	0.0333**	0.0555	0.0373**	0.1022**	0.0431**	0.0973**	0.0417**
	(0.044)	(0.016)	(0.042)	(0.017)	(0.046)	(0.019)	(0.048)	(0.018)
D1995					-0.0515	0.0076	-0.0720	0.0026
					(0.046)	(0.014)	(0.047)	(0.013)

D1998					-0.0383	0.0115	-0.1014**	-0.0125
					(0.041)	(0.013)	(0.042)	(0.012)
D1999					-0.0054	0.0017	0.0064	0.0053
					(0.015)	(0.004)	(0.017)	(0.005)
D2002					0.0519	0.0300**	-0.0019	0.0117
					(0.036)	(0.015)	(0.040)	(0.014)
D2005					-0.0027	0.0021	0.0542**	0.0264*
					(0.022)	(0.007)	(0.027)	(0.014)
D2007					-0.0228*	0.0132*	0.0048	0.0273***
					(0.012)	(0.007)	(0.012)	(0.010)
D2012					-0.0056	0.0016	0.0105	0.0096
					(0.012)	(0.006)	(0.014)	(0.007)
D2014					0.0007	0.0027	0.0221	0.0152
					(0.013)	(0.009)	(0.015)	(0.009)
Crisis1	-0.0265	0.0162*	-0.0112	0.0136	-0.0675	0.0266*	-0.0791*	0.0263*
	(0.019)	(0.009)	(0.016)	(0.009)	(0.045)	(0.015)	(0.044)	(0.015)
Crisis2	-0.0037	-0.0005	0.0049	0.0004	0.0083	0.0165*	-0.0218	0.0111
	(0.011)	(0.005)	(0.014)	(0.005)	(0.016)	(0.008)	(0.029)	(0.011)
Crisis3	0.0243	0.0159**	0.0231***	0.0120**	0.0095	0.0015	0.0161***	0.0043
	(0.015)	(0.007)	(0.008)	(0.006)	(0.006)	(0.005)	(0.005)	(0.004)
Constant	0.1861*	0.0959*	0.1988**	0.0582	0.3445***	0.1420*	0.3799***	0.1435*
	(0.101)	(0.056)	(0.096)	(0.056)	(0.124)	(0.073)	(0.120)	(0.084)
Observations	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914
AR(2)	0.136	0.844	0.136	0.935	0.074	0.776	0.087	0.793
Hansen	0.121	0.271	0.100	0.175	0.218	0.643	0.182	0.192

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The linear combination test for column (9): The linear combination Cycle1+Cycle1*Crisis2 is not statistically significant with a p-value of 0.120. (15): The linear combinations Cycle2+Cycle2*Crisis2 and Cycle2+Cycle2*Crisis3 are statistically significant with p-values of 0.065 and 0.001, respectively. (16) The linear combination Cycle2+Cycle2*Crisis3 is statistically significant with a p-value of 0.050.

Table B9. Regressions Controlling for Other Bank Characteristics

VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset	(5) CAR	(6) Equity to Asset	(7) CAR	(8) Equity to Asset
CAR = L,	0.5699***		0.5815***		0.5194***		0.6174***	
	(0.113)		(0.136)		(0.123)		(0.113)	
LEV = L,		0.6325***		0.6496***		0.6534***		0.6354***
		(0.112)		(0.117)		(0.104)		(0.110)
Cycle1	-0.0930*	-0.0192			-0.0742	-0.0373		
	(0.053)	(0.030)			(0.073)	(0.034)		
Cycle2			-0.0057	0.0249			-0.2805*	-0.0571
			(0.110)	(0.029)			(0.153)	(0.076)
risk = L,	0.1798	0.1106*	0.2039**	0.0755	0.1747*	0.1016*	0.1832**	0.0661
	(0.121)	(0.058)	(0.093)	(0.059)	(0.102)	(0.052)	(0.089)	(0.058)
large	0.0149	0.0004	0.0193	-0.0024	0.0138	-0.0025	0.0083	-0.0055
	(0.012)	(0.008)	(0.015)	(0.006)	(0.014)	(0.007)	(0.015)	(0.006)
small	0.0826***	0.0562**	0.0733*	0.0606**	0.0917***	0.0531***	0.0645**	0.0608***
	(0.028)	(0.022)	(0.037)	(0.027)	(0.032)	(0.020)	(0.031)	(0.022)
ROA = L,	0.0635	0.0281	0.0221	0.0562	0.1520*	0.0472	0.0805	0.0896*
	(0.103)	(0.046)	(0.089)	(0.048)	(0.091)	(0.043)	(0.096)	(0.053)
Deposit Funding = L,	-0.0950***	-0.0219	-0.0751*	-0.0157	-0.1065***	-0.0150	-0.0612**	-0.0100
	(0.035)	(0.016)	(0.040)	(0.015)	(0.038)	(0.015)	(0.029)	(0.014)
Liquidity = L,	0.0502	0.0158	0.0398	0.0268*	0.0652**	0.0234	0.0520	0.0342***
	(0.034)	(0.018)	(0.044)	(0.014)	(0.032)	(0.016)	(0.038)	(0.013)
D1995					-0.0330	0.0027	-0.0155	0.0020
					(0.023)	(0.009)	(0.024)	(0.006)
D1998					-0.0455**	0.0014	-0.0421*	-0.0014
					(0.021)	(0.007)	(0.026)	(0.007)
D1999					-0.0031	0.0016	-0.0027	0.0036
					(0.011)	(0.003)	(0.009)	(0.003)
D2002					0.0301	0.0120	0.0083	0.0129*
					(0.026)	(0.008)	(0.027)	(0.007)
D2005					0.0004	-0.0014	0.0216	0.0019
					(0.015)	(0.007)	(0.020)	(0.010)
D2007					-0.0341***	0.0074	-0.0126	0.0099
					(0.009)	(0.005)	(0.008)	(0.006)

D2012					-0.0118	0.0007	0.0074	-0.0011
					(0.008)	(0.005)	(0.007)	(0.005)
D2014					-0.0028	0.0017	0.0157*	0.0019
					(0.009)	(0.007)	(0.008)	(0.007)
Crisis1	-0.0165	0.0160	-0.0007	0.0238***	-0.0391**	0.0208**	-0.0127	0.0300***
	(0.014)	(0.010)	(0.016)	(0.007)	(0.018)	(0.010)	(0.026)	(0.007)
Crisis2	-0.0053	0.0020	-0.0022	0.0002	0.0082	0.0068*	0.0064	0.0051*
	(0.008)	(0.004)	(0.008)	(0.003)	(0.008)	(0.004)	(0.006)	(0.003)
Crisis3	0.0133	0.0074	0.0111	0.0065*	0.0151*	0.0011	0.0171***	0.0016
	(0.009)	(0.005)	(0.007)	(0.003)	(0.009)	(0.003)	(0.005)	(0.002)
Constant	0.1095***	0.0444*	0.0910**	0.0366	0.1293***	0.0271	0.0863**	0.0237
	(0.033)	(0.023)	(0.039)	(0.023)	(0.040)	(0.024)	(0.034)	(0.020)
Observations	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914
AR(2)	0.216	0.858	0.223	0.822	0.180	0.867	0.219	0.860
Hansen	0.445	0.231	0.201	0.654	0.489	0.351	0.401	0.691

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

Table B9. Regressions Controlling for Other Bank Characteristics (cont'd)

VARIABLES	(9) CAR	(10) Equity to Asset	(11) CAR	(12) Equity to Asset	(13) CAR	(14) Equity to Asset	(15) CAR	(16) Equity to Asset
CAR = L,	0.4924***		0.5020***		0.3841***		0.4120***	
	(0.111)		(0.091)		(0.127)		(0.092)	
LEV = L,		0.5659***		0.5581***		0.5777***		0.5179***
		(0.069)		(0.085)		(0.086)		(0.089)
Cycle1	0.0728	0.0122			-0.0242	-0.0267		
	(0.066)	(0.026)			(0.058)	(0.024)		
Cycle1*Crisis1	-0.4619*	-0.1621			-0.3368	-0.1323		
	(0.269)	(0.128)			(0.228)	(0.117)		
Cycle1*Crisis2	-0.3473**	-0.0521			-0.1638	-0.1000		
	(0.149)	(0.061)			(0.266)	(0.119)		
Cycle1*Crisis3	-0.3890	-0.0787			-0.2135	0.0100		
	(0.239)	(0.185)			(0.251)	(0.176)		
Cycle2			-0.0332	0.0121			-0.4400**	-0.2046**
			(0.096)	(0.037)			(0.187)	(0.091)
Cycle2*Crisis1			2.6597	-0.1040			2.2600	0.0840
			(2.331)	(1.066)			(2.239)	(1.085)
Cycle2*Crisis2			0.7501*	-0.0136			-1.1094	0.0943
			(0.437)	(0.168)			(0.884)	(0.303)
Cycle2*Crisis3			-0.0116	0.0058			-0.0234	-0.0188
			(0.082)	(0.090)			(0.086)	(0.088)
risk = L,	0.3194***	0.1615***	0.3526***	0.1737***	0.3269***	0.1166**	0.3095***	0.1381**
	(0.100)	(0.059)	(0.098)	(0.062)	(0.102)	(0.058)	(0.109)	(0.057)
large	0.0146	-0.0074	0.0146	-0.0057	0.0040	-0.0090	0.0165	-0.0088
	(0.017)	(0.008)	(0.018)	(0.007)	(0.022)	(0.009)	(0.018)	(0.008)
small	0.0823**	0.0558***	0.0790**	0.0535***	0.1022**	0.0597***	0.0927**	0.0573***
	(0.035)	(0.018)	(0.032)	(0.018)	(0.043)	(0.019)	(0.037)	(0.021)
ROA = L,	0.0096	0.0570	0.0321	0.0681	0.1646	0.0766*	0.1754*	0.1109**
	(0.096)	(0.042)	(0.100)	(0.044)	(0.100)	(0.042)	(0.096)	(0.047)
Deposit Funding = L,	-0.1152***	-0.0185	-0.1011***	-0.0234*	-0.1181***	-0.0129	-0.0997***	-0.0221
	(0.040)	(0.014)	(0.036)	(0.014)	(0.039)	(0.015)	(0.037)	(0.015)
Liquidity = L,	0.0550	0.0224	0.0499	0.0199	0.0848*	0.0337**	0.0826*	0.0315**
	(0.037)	(0.016)	(0.039)	(0.016)	(0.045)	(0.016)	(0.047)	(0.014)

D1995					-0.0154	0.0093	-0.0677	0.0026
					(0.049)	(0.014)	(0.045)	(0.014)
D1998					-0.0169	0.0085	-0.0963**	-0.0131
					(0.042)	(0.014)	(0.045)	(0.013)
D1999					-0.0033	0.0010	-0.0014	0.0025
					(0.014)	(0.003)	(0.015)	(0.004)
D2002					0.0529	0.0224	-0.0174	0.0089
					(0.039)	(0.015)	(0.039)	(0.013)
D2005					-0.0111	-0.0030	0.0255	0.0139
					(0.019)	(0.008)	(0.024)	(0.013)
D2007					-0.0231*	0.0094*	-0.0075	0.0218***
					(0.012)	(0.005)	(0.010)	(0.008)
D2012					-0.0117	-0.0005	0.0015	0.0050
					(0.010)	(0.006)	(0.013)	(0.006)
D2014					-0.0071	0.0005	0.0097	0.0088
					(0.011)	(0.008)	(0.013)	(0.009)
Crisis1	-0.0172	0.0211**	-0.0032	0.0189**	-0.0288	0.0298*	-0.0698	0.0270*
	(0.016)	(0.009)	(0.015)	(0.009)	(0.048)	(0.015)	(0.044)	(0.016)
Crisis2	0.0004	0.0001	0.0041	-0.0005	0.0089	0.0116	-0.0344	0.0079
	(0.009)	(0.004)	(0.013)	(0.005)	(0.016)	(0.008)	(0.030)	(0.011)
Crisis3	0.0173	0.0139**	0.0190***	0.0121**	0.0102	0.0024	0.0172***	0.0049
	(0.011)	(0.006)	(0.007)	(0.006)	(0.007)	(0.005)	(0.006)	(0.004)
Constant	0.1224***	0.0462***	0.1183***	0.0505***	0.1270**	0.0243	0.1727***	0.0427*
	(0.036)	(0.015)	(0.033)	(0.017)	(0.062)	(0.024)	(0.058)	(0.023)
Observations	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914
AR(2)	0.181	0.970	0.161	0.996	0.105	0.959	0.140	0.910
Hansen	0.191	0.367	0.147	0.156	0.182	0.706	0.170	0.210

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The linear combination test for column (9): The linear combination Cycle1+Cycle*Crisis1 is not statistically significant with a p-value of 0.143. The linear combination Cycle1+Cycle1*Crisis2 is statistically significant with a p-value of 0.034. (11): The linear combination Cycle2+Cycle2*Crisis2 is not statistically significant with a p-value of 0.108. (15): The linear combinations Cycle2+Cycle2*Crisis2 and Cycle2+Cycle2*Crisis3 are statistically significant with p-values of 0.085 and 0.020, respectively. (16): The linear combination Cycle2+Cycle2*Crisis3 is statistically significant with a p-value of 0.065.

Table B10. Baseline Regressions for 2003:Q1-2014:Q3

VARIABLES	(1) CAR	(2) Equity to asset	(3) CAR	(4) Equity to asset
CAR = L,	0.6793***		0.1340	
	(0.165)		(0.149)	
LEV = L,		0.7240***		0.6094***
		(0.132)		(0.116)
Cycle1	-0.1145***	-0.0982**		
	(0.037)	(0.049)		
Cycle2			-0.6458**	-0.1730*
			(0.283)	(0.099)
Constant	0.0775*	0.0452**	0.2473***	0.0721***
	(0.042)	(0.020)	(0.049)	(0.021)
Observations	1,368	1,368	1,368	1,368
AR(2)	0.091	0.158	0.276	0.194
Hansen	0.217	0.173	0.200	0.161

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

Table B10. Baseline Regressions for 2003:Q1-2014:Q3 (cont'd)

VARIABLES	(5) CAR	(6) Equity to asset	(7) CAR	(8) Equity to asset	(9) CAR	(10) Equity to asset	(11) CAR	(12) Equity to asset
CAR = L,	0.6935***		0.1798		0.7664***		0.5927***	
	(0.161)		(0.180)		(0.117)		(0.164)	
LEV = L,		0.6888***		0.6136***		0.8606***		0.7392***
		(0.126)		(0.127)		(0.100)		(0.086)
Cycle1	-0.1277***	-0.1011*			-0.1086***	-0.1305**		
	(0.046)	(0.052)			(0.033)	(0.053)		
Cycle1*Crisis3					0.2996	0.4083**		
					(0.218)	(0.185)		
Cycle2			-0.6041**	-0.1492*			-0.3352**	-0.1745
			(0.273)	(0.084)			(0.131)	(0.189)
Cycle2*Crisis3							0.0643	0.0432
							(0.115)	(0.101)
Crisis3	-0.0043	-0.0047	0.0195***	0.0084***	0.0024	-0.0013	0.0145***	0.0098
	(0.004)	(0.004)	(0.007)	(0.003)	(0.004)	(0.005)	(0.003)	(0.007)
Constant	0.0746*	0.0514***	0.2356***	0.0677***	0.0600*	0.0292**	0.1302***	0.0528***
	(0.041)	(0.019)	(0.054)	(0.021)	(0.032)	(0.014)	(0.049)	(0.019)
Observations	1,368	1,368	1,368	1,368	1,368	1,368	1,368	1,368
AR(2)	0.0872	0.164	0.265	0.198	0.079	0.154	0.0983	0.158
Hansen	0.207	0.155	0.149	0.185	0.183	0.121	0.207	0.119

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The linear combination test for column (10): The linear combination Cycle1+Cycle1*Crisis3 is statistically significant with a p-value of 0.093.

Table B11. Regressions Controlling For Basic Bank Characteristics for 2003:Q1-2014:Q3

VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset	(5) CAR	(6) Equity to Asset	(7) CAR	(8) Equity to Asset
CAR = L,	0.6617**		0.5679**		0.7233***		0.5735***	
	(0.308)		(0.288)		(0.189)		(0.172)	
LEV = L,		0.4354		0.6484***		0.1555		0.5145***
		(0.280)		(0.155)		(0.290)		(0.192)
Cycle1	-0.1740***	-0.0506**			-0.1540***	0.0029		
	(0.031)	(0.025)			(0.027)	(0.040)		
Cycle2			-0.2206	0.0233			-0.3269*	-0.0749
			(0.258)	(0.091)			(0.199)	(0.093)
risk = L,	0.3481***	0.1493	0.3287**	0.1931	0.3155***	0.1145	0.2522*	0.1246
	(0.095)	(0.105)	(0.149)	(0.130)	(0.118)	(0.146)	(0.131)	(0.145)
Size = L,	-0.0128	-0.0103*	-0.0157	-0.0061				
	(0.016)	(0.006)	(0.015)	(0.005)				
large					-0.0073	-0.0240**	-0.0140	-0.0143*
					(0.005)	(0.010)	(0.011)	(0.008)
small					0.0604	0.1455***	0.1055*	0.0957**
					(0.066)	(0.046)	(0.060)	(0.043)
ROA = L,	0.4125	0.3927*	0.4668*	0.3411*	0.3044**	0.5199*	0.3943***	0.4188**
	(0.286)	(0.224)	(0.277)	(0.180)	(0.145)	(0.313)	(0.148)	(0.163)
Constant	0.2326	0.2076*	0.3041	0.1168	0.0478	0.1048***	0.0993**	0.0619**
	(0.278)	(0.119)	(0.284)	(0.080)	(0.040)	(0.034)	(0.047)	(0.031)
Observations	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332
AR(2)	0.230	0.213	0.239	0.074	0.205	0.984	0.204	0.133
Hansen	0.285	0.400	0.130	0.125	0.247	0.146	0.206	0.120

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

Table B11. Regressions Controlling for Basic Bank Characteristics for 2003:Q1-2014:Q3 (cont'd)

VARIABLES	(9) CAR	(10) Equity to Asset	(11) CAR	(12) Equity to Asset	(13) CAR	(14) Equity to Asset	(15) CAR	(16) Equity to Asset
CAR = L,	0.7216***		0.5863**		0.7589***		0.5939***	
	(0.277)		(0.266)		(0.167)		(0.159)	
LEV = L,		0.4466		0.6381***		0.1740		0.5066**
		(0.273)		(0.159)		(0.362)		(0.197)
Cycle1	-0.1972***	-0.0343			-0.1802***	0.0206		
	(0.039)	(0.046)			(0.038)	(0.055)		
Cycle2			-0.2019	0.0182			-0.2965*	-0.0735
			(0.216)	(0.088)			(0.163)	(0.080)
risk = L,	0.3435***	0.1492	0.3163**	0.1983	0.3010***	0.1270	0.2389*	0.1258
	(0.100)	(0.101)	(0.144)	(0.127)	(0.115)	(0.108)	(0.128)	(0.141)
Size = L,	-0.0097	-0.0099*	-0.0150	-0.0064				
	(0.015)	(0.006)	(0.014)	(0.005)				
large					-0.0061	-0.0227*	-0.0137	-0.0145*
					(0.005)	(0.012)	(0.011)	(0.008)
small					0.0539	0.1422**	0.1014*	0.0959**
					(0.061)	(0.060)	(0.057)	(0.044)
ROA = L,	0.3639	0.3521**	0.4416*	0.3452*	0.2883**	0.4673	0.3692***	0.4068**
	(0.264)	(0.167)	(0.252)	(0.183)	(0.133)	(0.290)	(0.135)	(0.178)
Crisis3	-0.0052	0.0051	0.0139**	0.0029	-0.0050	0.0063	0.0159***	0.0079
	(0.005)	(0.006)	(0.007)	(0.003)	(0.005)	(0.006)	(0.006)	(0.005)
Constant	0.1782	0.1992*	0.2874	0.1214	0.0407	0.1001**	0.0907**	0.0615**
	(0.253)	(0.114)	(0.262)	(0.084)	(0.033)	(0.044)	(0.042)	(0.029)
Observations	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332
AR(2)	0.222	0.212	0.241	0.077	0.203	0.943	0.207	0.139
Hansen	0.245	0.416	0.133	0.130	0.293	0.146	0.204	0.131

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

Table B11. Regressions Controlling for Basic Bank Characteristics for 2003:Q1-2014:Q3 (cont'd)

VARIABLES	(17) CAR	(18) Equity to Asset	(19) CAR	(20) Equity to Asset	(21) CAR	(22) Equity to Asset	(23) CAR	(24) Equity to Asset
CAR = L,	0.4770**		0.4427**		0.6001***		0.4716***	
	(0.218)		(0.177)		(0.162)		(0.137)	
LEV = L,		0.4809***		0.6091***		0.3659**		0.4955***
		(0.183)		(0.140)		(0.182)		(0.168)
Cycle1	-0.1334***	-0.0723**			-0.1081***	-0.0475		
	(0.033)	(0.032)			(0.032)	(0.039)		
Cycle1*Crisis3	0.3848*	0.2353			0.2363	0.1201		
	(0.222)	(0.184)			(0.188)	(0.184)		
Cycle2			-0.3551*	0.0270			-0.4332**	-0.0377
			(0.204)	(0.107)			(0.198)	(0.080)
Cycle2*Crisis3			-0.0043	-0.0101			0.0250	-0.0122
			(0.066)	(0.092)			(0.049)	(0.083)
risk = L,	0.2679	0.2187*	0.3591**	0.1822	0.2186	0.1907	0.2732**	0.1320
	(0.189)	(0.130)	(0.167)	(0.123)	(0.148)	(0.124)	(0.132)	(0.128)
Size = L,	-0.0224*	-0.0101*	-0.0217	-0.0069				
	(0.013)	(0.006)	(0.013)	(0.005)				
large					-0.0130	-0.0179*	-0.0200	-0.0164**
					(0.012)	(0.011)	(0.014)	(0.008)
small					0.0965*	0.1103***	0.1254*	0.0926**
					(0.052)	(0.041)	(0.064)	(0.039)
ROA = L,	0.5712*	0.4429**	0.5560**	0.3385**	0.3475**	0.4939**	0.4453**	0.4010**
	(0.315)	(0.195)	(0.270)	(0.155)	(0.165)	(0.222)	(0.177)	(0.170)
Crisis3	0.0015	0.0049	0.0176**	0.0044	0.0019	0.0054	0.0189***	0.0075
	(0.006)	(0.006)	(0.008)	(0.005)	(0.006)	(0.006)	(0.007)	(0.005)
Constant	0.4059*	0.1940**	0.4207*	0.1339*	0.0771**	0.0734***	0.1277***	0.0609***
	(0.222)	(0.097)	(0.220)	(0.079)	(0.033)	(0.020)	(0.037)	(0.023)
Observations	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332
AR(2)	0.256	0.100	0.259	0.082	0.211	0.237	0.213	0.133
Hansen	0.233	0.120	0.308	0.194	0.241	0.174	0.475	0.190

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Linear combination test for column (17): Linear combination Cycle1+Cycle1*Crisis3 is not statistically significant with p-value of 0.266. (23): The linear combination Cycle2+Cycle2*Crisis3 is statistically significant with a p-value of 0.063.

Table B12. Regressions Controlling for Other Bank Characteristics for 2003:Q1-2014:Q3

VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset	(5) CAR	(6) Equity to Asset	(7) CAR	(8) Equity to Asset
CAR = L,	0.7715***		0.6020***		0.8182***		0.6885**	
	(0.297)		(0.188)		(0.296)		(0.278)	
LEV = L,		0.4979**		0.7186***		0.5093**		0.5370*
		(0.224)		(0.189)		(0.216)		(0.280)
Cycle1	-0.1630***	-0.0450			-0.1478***	-0.0449		
	(0.050)	(0.043)			(0.048)	(0.038)		
Cycle2			-0.1677	-0.0286			-0.5236**	-0.1755*
			(0.190)	(0.093)			(0.257)	(0.094)
risk = L,	0.3701***	0.1087	0.2872**	0.1746	0.3934***	0.1230	0.2780*	0.1522
	(0.102)	(0.122)	(0.140)	(0.131)	(0.090)	(0.114)	(0.144)	(0.118)
Size = L,	-0.0032	-0.0069	-0.0089	-0.0003	-0.0010	-0.0074	-0.0052	-0.0074
	(0.012)	(0.005)	(0.009)	(0.006)	(0.012)	(0.005)	(0.010)	(0.010)
ROA = L,	0.2906	0.2777*	0.3941*	0.2648	0.2530	0.3268***	0.3258*	0.4309
	(0.248)	(0.156)	(0.215)	(0.220)	(0.212)	(0.115)	(0.183)	(0.320)
Non-Deposit Funding = L,	0.0914**	-0.0089	0.0849*	0.0576	0.0993**	-0.0178	0.1040*	0.0320
	(0.043)	(0.028)	(0.051)	(0.036)	(0.039)	(0.032)	(0.061)	(0.046)
Liquidity = L,	0.0184	0.0680**	0.0674	0.0437***	0.0003	0.0669***	0.0463	0.0474*
	(0.103)	(0.030)	(0.061)	(0.017)	(0.106)	(0.022)	(0.095)	(0.026)
D2005					0.0154	-0.0060	0.0486***	0.0113
					(0.010)	(0.007)	(0.016)	(0.010)
D2007					-0.0160***	0.0077	0.0079	0.0201**
					(0.006)	(0.009)	(0.015)	(0.010)
D2012					-0.0020	0.0048	0.0134**	0.0054
					(0.005)	(0.003)	(0.006)	(0.005)
D2014					0.0020	0.0095*	0.0216**	0.0103
					(0.004)	(0.006)	(0.010)	(0.008)
Crisis3	-0.0014	0.0015	0.0154***	0.0047	0.0013	0.0030	0.0131***	0.0029
	(0.008)	(0.005)	(0.006)	(0.003)	(0.006)	(0.005)	(0.005)	(0.003)
Constant	0.0424	0.1395	0.1540	0.0008	0.0009	0.1450	0.0641	0.1190
	(0.208)	(0.092)	(0.151)	(0.113)	(0.200)	(0.092)	(0.169)	(0.170)
Observations	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332
AR(2)	0.226	0.257	0.239	0.104	0.214	0.204	0.219	0.199
Hansen	0.179	0.389	0.132	0.139	0.186	0.240	0.211	0.128

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

Table B12. Regressions Controlling for Other Bank Characteristics for 2003:Q1-2014:Q3 (cont'd)

VARIABLES	(9) CAR	(10) Equity to Asset	(11) CAR	(12) Equity to Asset	(13) CAR	(14) Equity to Asset	(15) CAR	(16) Equity to Asset
CAR = L,	0.5140**		0.4871***		0.4700**		0.5113***	
	(0.220)		(0.167)		(0.214)		(0.181)	
LEV = L,		0.4627**		0.6443***		0.4157*		0.5549***
		(0.217)		(0.171)		(0.244)		(0.177)
Cycle1	-0.1264***	-0.0731**			-0.1040***	-0.0866**		
	(0.036)	(0.032)			(0.035)	(0.035)		
Cycle1*Crisis3	0.3192	0.2359			0.2423	0.1274		
	(0.210)	(0.176)			(0.190)	(0.148)		
Cycle2			-0.2957	0.0005			-0.4716**	-0.2436**
			(0.219)	(0.105)			(0.217)	(0.107)
Cycle2*Crisis3			-0.0109	-0.0079			-0.0098	-0.0187
			(0.074)	(0.086)			(0.063)	(0.085)
risk = L,	0.3034*	0.2003	0.3256**	0.1643	0.3155*	0.2071	0.2009	0.1422
	(0.172)	(0.137)	(0.159)	(0.125)	(0.167)	(0.146)	(0.180)	(0.118)
Size = L,	-0.0139	-0.0084	-0.0128	-0.0029	-0.0152	-0.0106	-0.0138	-0.0064
	(0.010)	(0.008)	(0.009)	(0.006)	(0.011)	(0.010)	(0.010)	(0.007)
ROA = L,	0.4759	0.4273*	0.4808**	0.2919*	0.4698*	0.4534	0.4436**	0.3824*
	(0.303)	(0.237)	(0.228)	(0.174)	(0.265)	(0.292)	(0.223)	(0.196)
Non-Deposit Funding = L,	0.0876*	0.0008	0.0841	0.0379	0.0905	-0.0026	0.0946	0.0213
	(0.050)	(0.051)	(0.053)	(0.038)	(0.056)	(0.060)	(0.061)	(0.049)
Liquidity = L,	0.0900	0.0643**	0.0948	0.0479**	0.0966	0.0619**	0.1003*	0.0580**
	(0.066)	(0.033)	(0.060)	(0.020)	(0.071)	(0.030)	(0.056)	(0.029)
D2005					0.0058	-0.0000	0.0381*	0.0176
					(0.011)	(0.007)	(0.021)	(0.011)
D2007					-0.0196**	0.0144	0.0023	0.0227**
					(0.010)	(0.014)	(0.009)	(0.009)
D2012					0.0006	0.0047	0.0090	0.0082
					(0.007)	(0.008)	(0.007)	(0.006)
D2014					0.0044	0.0076	0.0218**	0.0165**
					(0.008)	(0.011)	(0.010)	(0.008)
Crisis3	0.0017	0.0042	0.0170***	0.0056	0.0104*	0.0001	0.0134***	0.0020
	(0.005)	(0.005)	(0.006)	(0.004)	(0.006)	(0.006)	(0.004)	(0.004)
Constant	0.2262	0.1580	0.2342	0.0507	0.2550	0.1874	0.2231	0.1027
	(0.164)	(0.134)	(0.151)	(0.107)	(0.173)	(0.164)	(0.146)	(0.123)
Observations	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332
AR(2)	0.262	0.232	0.265	0.118	0.271	0.307	0.232	0.119
Hansen	0.265	0.121	0.415	0.206	0.255	0.141	0.637	0.232

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Linear combination test for column (15): The linear combination Cycle2+Cycle2*Crisis3 is statistically significant with a value of 0.037. (16): The linear combination Cycle2+Cycle2*Crisis3 is statistically significant with a value of 0.000.

Table B13. Regressions Controlling for Other Bank Characteristics for 2003:Q1-2014:Q3

VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset	(5) CAR	(6) Equity to Asset	(7) CAR	(8) Equity to Asset
CAR = L,	0.7786***		0.4662***		0.8093***		0.5988**	
	(0.205)		(0.161)		(0.246)		(0.233)	
LEV = L,		0.2098		0.5237***		0.3923		0.3967
		(0.325)		(0.200)		(0.259)		(0.282)
Cycle1	-0.1722***	0.0204			-0.1580***	-0.0299		
	(0.042)	(0.050)			(0.043)	(0.045)		
Cycle2			-0.3907**	-0.0812			-0.6169**	-0.2888**
			(0.198)	(0.086)			(0.240)	(0.120)
risk = L,	0.3299***	0.1072	0.2383*	0.1276	0.3463***	0.0928	0.1821	0.1165
	(0.103)	(0.120)	(0.141)	(0.133)	(0.078)	(0.080)	(0.155)	(0.140)
large	-0.0003	-0.0169*	0.0046	-0.0090	-0.0010	-0.0134**	0.0058	-0.0111
	(0.006)	(0.009)	(0.014)	(0.006)	(0.005)	(0.006)	(0.012)	(0.007)
small	0.0189	0.1096***	0.0714*	0.0759*	0.0134	0.0936***	0.0536	0.0905*
	(0.038)	(0.042)	(0.042)	(0.040)	(0.043)	(0.025)	(0.042)	(0.051)
ROA = L,	0.2314**	0.3872	0.3538*	0.3711**	0.2284***	0.4082***	0.3049**	0.4254*
	(0.098)	(0.275)	(0.194)	(0.174)	(0.079)	(0.095)	(0.122)	(0.234)
Deposit Funding = L,	-0.0753	-0.0340	-0.1608*	-0.0420	-0.0710	-0.0185	-0.1360	-0.0539
	(0.071)	(0.034)	(0.084)	(0.034)	(0.088)	(0.027)	(0.103)	(0.044)
Liquidity = L,	0.0196	0.0562*	0.0723	0.0250	0.0075	0.0407	0.0463	0.0267
	(0.058)	(0.033)	(0.049)	(0.020)	(0.068)	(0.031)	(0.057)	(0.026)
D2005					0.0161	-0.0147	0.0497***	0.0152
					(0.013)	(0.016)	(0.018)	(0.012)
D2007					-0.0185***	0.0075*	0.0085	0.0258*
					(0.006)	(0.005)	(0.013)	(0.013)
D2012					-0.0017	0.0006	0.0114**	0.0048
					(0.006)	(0.004)	(0.005)	(0.005)
D2014					0.0028	0.0043	0.0208***	0.0106
					(0.006)	(0.008)	(0.006)	(0.008)
Crisis3	-0.0030	0.0063	0.0202***	0.0084	0.0006	0.0026	0.0136***	0.0044
	(0.005)	(0.006)	(0.007)	(0.005)	(0.005)	(0.006)	(0.005)	(0.003)
Constant	0.0702	0.1004**	0.1904**	0.0743*	0.0616	0.0790**	0.1253	0.0849
	(0.067)	(0.041)	(0.076)	(0.042)	(0.089)	(0.040)	(0.092)	(0.055)
Observations	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332
AR(2)	0.207	0.979	0.218	0.141	0.202	0.458	0.200	0.338
Hansen	0.191	0.235	0.160	0.108	0.166	0.277	0.260	0.0602

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

Table B13. Regressions Controlling for Other Bank Characteristics for 2003:Q1-2014:Q3 (cont'd)

VARIABLES	(9) CAR	(10) Equity to Asset	(11) CAR	(12) Equity to Asset	(13) CAR	(14) Equity to Asset	(15) CAR	(16) Equity to Asset
CAR = L,	0.5657***		0.4345***		0.4616**		0.4718***	
	(0.177)		(0.167)		(0.217)		(0.181)	
LEV = L,		0.3628*		0.5033***		0.4458**		0.4327**
		(0.210)		(0.178)		(0.194)		(0.188)
Cycle1	-0.1157***	-0.0506			-0.0929**	-0.0752**		
	(0.033)	(0.042)			(0.038)	(0.037)		
Cycle1*Crisis3	0.2787	0.1183			0.2832	0.1191		
	(0.186)	(0.201)			(0.210)	(0.166)		
Cycle2			-0.4160**	-0.0438			-0.6352**	-0.2971***
			(0.209)	(0.085)			(0.261)	(0.103)
Cycle2*Crisis3			-0.0054	-0.0151			-0.0025	-0.0262
			(0.065)	(0.081)			(0.063)	(0.079)
risk = L,	0.2638*	0.1815	0.2612*	0.1287	0.2745*	0.1547	0.1521	0.1112
	(0.137)	(0.132)	(0.149)	(0.132)	(0.145)	(0.127)	(0.167)	(0.132)
large	0.0018	-0.0137	0.0059	-0.0095	0.0030	-0.0096	0.0051	-0.0100
	(0.010)	(0.009)	(0.016)	(0.007)	(0.017)	(0.008)	(0.023)	(0.009)
small	0.0553	0.0905**	0.0732*	0.0770**	0.0700	0.0764**	0.0699	0.0819**
	(0.037)	(0.039)	(0.044)	(0.036)	(0.049)	(0.038)	(0.048)	(0.037)
ROA = L,	0.2803	0.4644*	0.3708*	0.3703**	0.3283*	0.3593*	0.3380**	0.3956*
	(0.176)	(0.239)	(0.190)	(0.170)	(0.190)	(0.209)	(0.165)	(0.211)
Deposit Funding = L,	-0.1339**	-0.0395	-0.1712**	-0.0354	-0.1615*	-0.0352	-0.1644	-0.0429
	(0.068)	(0.037)	(0.080)	(0.030)	(0.085)	(0.033)	(0.106)	(0.036)
Liquidity = L,	0.0594	0.0319	0.0773	0.0258	0.0653	0.0363	0.1044**	0.0325
	(0.044)	(0.024)	(0.049)	(0.021)	(0.052)	(0.023)	(0.050)	(0.022)
D2005					-0.0020	-0.0056	0.0388*	0.0160
					(0.014)	(0.008)	(0.023)	(0.011)
D2007					-0.0277***	0.0102	0.0015	0.0251**
					(0.009)	(0.010)	(0.008)	(0.011)
D2012					-0.0065	0.0011	0.0070	0.0052
					(0.009)	(0.006)	(0.008)	(0.006)
D2014					-0.0032	0.0041	0.0215**	0.0127
					(0.010)	(0.009)	(0.010)	(0.009)
Crisis3	0.0015	0.0055	0.0210***	0.0080	0.0138**	0.0022	0.0161***	0.0046
	(0.005)	(0.007)	(0.008)	(0.005)	(0.007)	(0.007)	(0.005)	(0.004)
Constant	0.1365**	0.0870**	0.2021***	0.0704*	0.1881**	0.0719**	0.1745**	0.0729*
	(0.060)	(0.039)	(0.072)	(0.036)	(0.082)	(0.036)	(0.086)	(0.039)
Observations	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332
AR(2)	0.215	0.313	0.225	0.146	0.228	0.223	0.198	0.197
Hansen	0.319	0.124	0.470	0.197	0.194	0.180	0.664	0.206

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Linear combination test for column (11): The linear combination Cycle2+Cycle2*Crisis3 is statistically significant with a value of 0.073. (15): The linear combination Cycle2+Cycle2*Crisis3 is statistically significant with a value of 0.034. (16): The linear combination Cycle2+Cycle2*Crisis3 is statistically significant with a value of 0.003.

Table B14. Regressions with Ownership Dummy Variables for 1993:Q4-2014:Q3

VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset	(5) CAR	(6) Equity to Asset	(7) CAR	(8) Equity to Asset
CAR = L,	0.5519***		0.4706***		0.5118***		0.4271***	
	(0.129)		(0.118)		(0.143)		(0.122)	
LEV = L,		0.7346***		0.7217***		0.6731***		0.6494***
		(0.110)		(0.101)		(0.122)		(0.126)
Cycle1	-0.0664	0.0160			-0.0829	0.0267		
	(0.053)	(0.029)			(0.095)	(0.050)		
Cycle1*Public	0.0472	-0.0684			0.0903	-0.0568		
	(0.178)	(0.058)			(0.154)	(0.120)		
Cycle1*Foreign	-0.0261	-0.0682			-0.0008	-0.0888		
	(0.108)	(0.052)			(0.111)	(0.056)		
Cycle2			-0.0013	-0.0312			-0.4621**	-0.1034
			(0.114)	(0.044)			(0.226)	(0.106)
Cycle2*Public			-0.0586	0.1390			-0.3109	-0.0586
			(0.419)	(0.236)			(0.649)	(0.157)
Cycle2*Foreign			0.1753	0.0231			0.1541	-0.0136
			(0.290)	(0.085)			(0.330)	(0.104)
risk = L,	0.1652	0.1511**	0.2955***	0.1355**	0.1787**	0.1373**	0.2215**	0.1322**
	(0.114)	(0.068)	(0.084)	(0.063)	(0.090)	(0.065)	(0.099)	(0.058)
Size = L,	-0.0111**	0.0013	-0.0157**	0.0009	-0.0168**	-0.0034	-0.0212**	-0.0029
	(0.006)	(0.003)	(0.007)	(0.003)	(0.008)	(0.005)	(0.009)	(0.005)
ROA = L,	-0.0367	-0.0130	0.0272	0.0139	0.1115	0.0389	0.1943*	0.0616
	(0.091)	(0.042)	(0.090)	(0.044)	(0.096)	(0.058)	(0.106)	(0.065)
Non-Deposit Funding = L,	0.0570*	0.0213	0.0456	0.0189	0.0643**	0.0158	0.0323	0.0093
	(0.029)	(0.021)	(0.033)	(0.022)	(0.032)	(0.023)	(0.038)	(0.027)
Liquidity = L,	0.0719*	0.0471***	0.0696	0.0397**	0.0863**	0.0476***	0.0983**	0.0493***
	(0.041)	(0.014)	(0.045)	(0.016)	(0.035)	(0.016)	(0.046)	(0.018)
public	0.0475*	-0.0112	0.0656*	-0.0182	0.0460	-0.0070	0.0963*	-0.0090
	(0.026)	(0.007)	(0.039)	(0.012)	(0.031)	(0.010)	(0.053)	(0.011)
foreign	0.0302*	0.0020	0.0078	0.0021	0.0183	-0.0059	-0.0010	-0.0033
	(0.016)	(0.006)	(0.025)	(0.008)	(0.014)	(0.006)	(0.025)	(0.007)
D1995					-0.0335	-0.0041	-0.0334	0.0010

					(0.031)	(0.012)	(0.022)	(0.007)
D1998					-0.0321	-0.0010	-0.0501*	-0.0031
					(0.021)	(0.008)	(0.026)	(0.010)
D1999					-0.0002	0.0001	0.0002	0.0021
					(0.012)	(0.004)	(0.015)	(0.005)
D2002					0.0402	0.0091	0.0403	0.0114
					(0.030)	(0.012)	(0.030)	(0.008)
D2005					0.0120	0.0029	0.0348	0.0089
					(0.016)	(0.007)	(0.027)	(0.014)
D2007					-0.0265***	0.0103	-0.0056	0.0157
					(0.008)	(0.007)	(0.013)	(0.010)
D2012					-0.0074	-0.0000	0.0100	0.0034
					(0.009)	(0.005)	(0.011)	(0.006)
D2014					-0.0006	0.0030	0.0190	0.0084
					(0.010)	(0.007)	(0.012)	(0.009)
Crisis1	-0.0261*	0.0173*	-0.0210	0.0210**	-0.0470**	0.0195*	-0.0431**	0.0267***
	(0.014)	(0.010)	(0.014)	(0.008)	(0.023)	(0.011)	(0.020)	(0.009)
Crisis2	-0.0053	-0.0013	-0.0074	0.0016	0.0102	0.0050	0.0094	0.0074*
	(0.008)	(0.004)	(0.010)	(0.003)	(0.009)	(0.005)	(0.009)	(0.004)
Crisis3	0.0170	0.0089	0.0209**	0.0068	0.0103	0.0024	0.0155***	0.0018
	(0.011)	(0.006)	(0.009)	(0.005)	(0.010)	(0.004)	(0.005)	(0.003)
Constant	0.1801**	-0.0113	0.2516**	-0.0011	0.2505**	0.0531	0.3231***	0.0455
	(0.082)	(0.058)	(0.100)	(0.051)	(0.121)	(0.084)	(0.117)	(0.079)
Observations	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914
AR(2)	0.168	0.970	0.130	0.909	0.138	0.982	0.111	0.975
Hansen	0.237	0.430	0.380	0.252	0.277	0.594	0.564	0.213

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

Table B15. Regressions with Ownership Dummy Variables for 2003:Q1-2014:Q3

VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset	(5) CAR	(6) Equity to Asset	(7) CAR	(8) Equity to Asset
CAR = L,	0.7567***		0.6865***		0.7082***		0.7361***	
	(0.242)		(0.162)		(0.246)		(0.223)	
LEV = L,		0.6056***		0.7735***		0.5881**		0.6282***
		(0.193)		(0.121)		(0.232)		(0.202)
Cycle1	-0.0352	-0.0268			-0.0484	-0.0250		
	(0.046)	(0.030)			(0.058)	(0.026)		
Cycle1*Public	-0.1552	-0.0317			-0.0650	-0.0231		
	(0.196)	(0.043)			(0.190)	(0.041)		
Cycle1*Foreign	-0.1797	-0.0550			-0.1892*	-0.0672		
	(0.114)	(0.059)			(0.097)	(0.066)		
Cycle2			-0.2340	-0.2013			-0.5502*	-0.2793
			(0.457)	(0.212)			(0.316)	(0.199)
Cycle2*Public			-0.2401	-0.2074			-0.2358	-0.1188
			(1.753)	(0.756)			(2.182)	(0.357)
Cycle2*Foreign			0.1467	0.2252			0.2273	0.1311
			(1.006)	(0.326)			(0.496)	(0.411)
risk = L,	0.2978**	0.0817	0.4280	0.1767	0.2943**	0.0747	0.3196	0.1219
	(0.128)	(0.067)	(0.261)	(0.127)	(0.120)	(0.066)	(0.199)	(0.103)
Size = L,	-0.0049	-0.0042	-0.0040	0.0029	-0.0067	-0.0052	-0.0032	-0.0045
	(0.010)	(0.004)	(0.008)	(0.005)	(0.009)	(0.005)	(0.009)	(0.007)
ROA = L,	0.3031	0.2772**	0.3055**	0.1700	0.3506	0.2933**	0.2714	0.2741
	(0.211)	(0.108)	(0.152)	(0.136)	(0.228)	(0.117)	(0.189)	(0.176)
Non-Deposit Funding = L,	0.0830**	0.0009	0.1070	0.0601*	0.0748**	-0.0058	0.1059*	0.0274
	(0.034)	(0.047)	(0.080)	(0.033)	(0.032)	(0.060)	(0.059)	(0.051)
Liquidity = L,	0.0336	0.0675*	0.0304	0.0494**	0.0491	0.0709	0.0263	0.0555*
	(0.077)	(0.038)	(0.054)	(0.024)	(0.078)	(0.048)	(0.069)	(0.032)
public	0.0161	-0.0063	0.0350	0.0054	0.0210	-0.0059	0.0281	0.0030
	(0.020)	(0.005)	(0.156)	(0.059)	(0.019)	(0.006)	(0.193)	(0.028)
foreign	0.0062	0.0071	-0.0059	-0.0158	0.0114	0.0076	-0.0194	-0.0093
	(0.009)	(0.008)	(0.092)	(0.028)	(0.010)	(0.010)	(0.054)	(0.038)
D2005					0.0045	-0.0022	0.0498**	0.0153

					(0.010)	(0.005)	(0.023)	(0.010)
D2007					-0.0151***	0.0058	0.0049	0.0204**
					(0.006)	(0.006)	(0.011)	(0.009)
D2012					-0.0016	0.0021	0.0112*	0.0068
					(0.004)	(0.005)	(0.006)	(0.005)
D2014					0.0033	0.0068	0.0184*	0.0114
					(0.004)	(0.008)	(0.011)	(0.009)
Crisis3	-0.0009	0.0004	0.0181	0.0082	0.0005	-0.0008	0.0153**	0.0039*
	(0.006)	(0.004)	(0.013)	(0.006)	(0.006)	(0.004)	(0.007)	(0.002)
Constant	0.0641	0.0861	0.0612	-0.0384	0.1022	0.1012	0.0332	0.0755
	(0.163)	(0.084)	(0.131)	(0.082)	(0.160)	(0.093)	(0.147)	(0.124)
Observations	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332
AR(2)	0.223	0.159	0.225	0.098	0.228	0.197	0.199	0.118
Hansen	0.543	0.272	0.537	0.282	0.574	0.277	0.644	0.547

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

APPENDICES

APPENDIX C. ROBUSTNESS CHECK

Table C16. Regressions Controlling for the Impact of Capital Constrained Banks for 1993:Q4-2014:Q3

VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset
CAR = L,	0.4130***		0.4174***	
	(0.128)		(0.093)	
LEV = L,		0.5383***		0.4504***
		(0.095)		(0.064)
Cycle1	-0.0408	-0.0745*		
	(0.065)	(0.041)		
Cycle1*Crisis1	-0.2429	-0.1045		
	(0.267)	(0.133)		
Cycle1*Crisis2	0.0025	-0.0321		
	(0.253)	(0.103)		
Cycle1*Crisis3	-0.1514	-0.0189		
	(0.332)	(0.204)		
Cycle1*Constrained	0.1478	0.1521		
	(0.212)	(0.124)		
Cycle2			-0.5231**	-0.2031**
			(0.213)	(0.096)
Cycle2*Crisis1			1.8681	-0.3396
			(1.438)	(0.747)
Cycle2*Crisis2			0.2138	0.1882
			(1.055)	(0.395)
Cycle2*Crisis3			-0.0500	-0.1066
			(0.068)	(0.073)
Cycle2*Constrained			0.1657	0.1409**
			(0.186)	(0.067)
Constrained	-0.0468***	-0.0192***	-0.0460***	-0.0214***
	(0.011)	(0.006)	(0.011)	(0.005)
risk = L,	0.2457**	0.1130**	0.2978***	0.1756***
	(0.101)	(0.051)	(0.108)	(0.055)
Size = L,	-0.0159*	-0.0063*	-0.0165**	-0.0093***
	(0.008)	(0.004)	(0.007)	(0.003)
ROA = L,	0.1680	0.1113*	0.2405**	0.1707**
	(0.114)	(0.059)	(0.109)	(0.080)
Non-Deposit Funding = L,	0.0403	-0.0094	0.0317	-0.0141
	(0.036)	(0.023)	(0.031)	(0.020)
Liquidity = L,	0.0978**	0.0557***	0.0820**	0.0415***
	(0.044)	(0.018)	(0.039)	(0.014)
D1995	-0.0440	0.0049	-0.0337	0.0097
	(0.040)	(0.011)	(0.046)	(0.016)
D1998	-0.0390	0.0039	-0.0646	-0.0015
	(0.039)	(0.011)	(0.041)	(0.017)
D1999	-0.0029	-0.0005	0.0008	0.0020
	(0.011)	(0.004)	(0.012)	(0.004)
D2002	0.0420	0.0265**	0.0175	0.0197
	(0.035)	(0.011)	(0.043)	(0.017)
D2005	-0.0036	-0.0010	0.0480*	0.0194
	(0.017)	(0.006)	(0.029)	(0.012)
D2007	-0.0202	0.0121**	0.0079	0.0293***
	(0.013)	(0.006)	(0.009)	(0.008)
D2012	-0.0055	-0.0020	0.0101	0.0072
	(0.009)	(0.005)	(0.009)	(0.005)
D2014	0.0010	0.0003	0.0205**	0.0100
	(0.011)	(0.008)	(0.010)	(0.008)
Crisis1	-0.0558	0.0207*	-0.0380	0.0326**
	(0.038)	(0.013)	(0.043)	(0.017)
Crisis2	0.0075	0.0097	0.0162	0.0158
	(0.015)	(0.007)	(0.038)	(0.015)

Crisis3	0.0078	-0.0015	0.0176***	0.0037
	(0.008)	(0.005)	(0.005)	(0.003)
Constant	0.2789**	0.1034*	0.2794***	0.1497***
	(0.113)	(0.061)	(0.108)	(0.049)
Observations	2,914	2,914	2,914	2,914
AR(2)	0.109	0.758	0.118	0.674
Hansen	0.365	0.261	0.541	0.429

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

Table C17. Regressions Controlling for the Impact of Capital Constrained Banks for 2003:Q1-2014:Q3

VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset
CAR = L,	0.4001		0.5840***	
	(0.245)		(0.183)	
LEV = L,		0.4283*		0.5988***
		(0.228)		(0.220)
Cycle1	-0.0961*	-0.0230		
	(0.052)	(0.039)		
Cycle1*Crisis3	0.2825	-0.0509		
	(0.223)	(0.151)		
Cycle1*Constrained	-0.0098	-0.0964		
	(0.286)	(0.141)		
Cycle2			-0.6247**	-0.1589
			(0.250)	(0.126)
Cycle2*Crisis3			-0.0534	-0.0500
			(0.074)	(0.086)
Cycle2*Constrained			0.4012	0.0933
			(0.295)	(0.104)
Constrained	-0.0308*	-0.0074	-0.0493**	-0.0120
	(0.018)	(0.008)	(0.019)	(0.010)
risk = L,	0.1507	0.1078	0.1399	0.1371
	(0.201)	(0.124)	(0.181)	(0.122)
Size = L,	-0.0195	-0.0105	-0.0111	-0.0048
	(0.013)	(0.008)	(0.010)	(0.007)
ROA = L,	0.4828**	0.3357	0.3690*	0.3012
	(0.245)	(0.216)	(0.191)	(0.188)
Non-Deposit Funding = L,	0.0752	-0.0162	0.0797	0.0266
	(0.053)	(0.050)	(0.054)	(0.051)
Liquidity = L,	0.1104	0.0717*	0.0740	0.0545**
	(0.071)	(0.042)	(0.054)	(0.027)
D2005	-0.0013	-0.0018	0.0511*	0.0085
	(0.014)	(0.007)	(0.027)	(0.011)
D2007	-0.0201	0.0093	0.0117	0.0180*
	(0.013)	(0.011)	(0.009)	(0.010)
D2012	-0.0008	0.0006	0.0150*	0.0057
	(0.008)	(0.006)	(0.009)	(0.005)
D2014	0.0012	0.0058	0.0287**	0.0117
	(0.010)	(0.008)	(0.011)	(0.008)
Crisis3	0.0085	0.0030	0.0167***	0.0029
	(0.006)	(0.005)	(0.004)	(0.002)
Constant	0.3505*	0.1954	0.1821	0.0801
	(0.200)	(0.127)	(0.161)	(0.126)
Observations	1,332	1,332	1,332	1,332
AR(2)	0.299	0.335	0.231	0.138
Hansen	0.241	0.224	0.214	0.218

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

Table C18. Pooled OLS and FGLS Models Considering Business Cycle for 1993:Q4-2014:Q3

	Pooled OLS						FGLS			
VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset	(5) CAR	(6) Equity to Asset	(7) CAR	(8) Equity to Asset	(9) CAR	(10) Equity to Asset
CAR = L,	0.8267***		0.8267***		0.8339***		0.8372***		0.8258***	
	(0.011)		(0.017)		(0.017)		(0.010)		(0.011)	
LEV = L,		0.8498***		0.8498***		0.8424***		0.8540***		0.8332***
		(0.010)		(0.015)		(0.016)		(0.010)		(0.011)
Cycle1	-0.1105**	-0.0243	-0.1105**	-0.0243	-0.1090**	-0.0334	-0.1508***	-0.0358***	-0.1074**	-0.0289
	(0.053)	(0.024)	(0.051)	(0.024)	(0.048)	(0.024)	(0.019)	(0.011)	(0.050)	(0.023)
Cycle1*Crisis1	0.0310	-0.0224	0.0310	-0.0224	-0.0004	-0.0436	0.1239***	-0.1743***	-0.0134	-0.0398
	(0.149)	(0.068)	(0.172)	(0.074)	(0.146)	(0.069)	(0.044)	(0.032)	(0.137)	(0.065)
Cycle1*Crisis2	-0.4237**	-0.3756***	-0.4237**	-0.3756***	-0.3721**	-0.3967***	-0.2202***	-0.2163***	-0.3556**	-0.3930***
	(0.190)	(0.087)	(0.198)	(0.086)	(0.181)	(0.082)	(0.069)	(0.040)	(0.177)	(0.083)
Cycle1*Crisis3	0.0411	0.0835	0.0411	0.0835	0.0251	0.0842	0.0068	0.0974**	0.0312	0.0812
	(0.205)	(0.094)	(0.182)	(0.096)	(0.172)	(0.091)	(0.077)	(0.041)	(0.195)	(0.090)
risk = L,	0.0881***	0.0333***	0.0881**	0.0333**	0.0663*	0.0271*	0.0881***	0.0236***	0.0794***	0.0308***
	(0.021)	(0.009)	(0.039)	(0.015)	(0.038)	(0.015)	(0.014)	(0.006)	(0.019)	(0.009)
Size = L,	-0.0031***	-0.0012**	-0.0031**	-0.0012**	-0.0033**	-0.0017***	-0.0020***	-0.0010***	-0.0033***	-0.0018***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
ROA = L,	0.0118	0.0006	0.0118	0.0006	0.0102	0.0106	0.0232	0.0145	0.0060	0.0137
	(0.032)	(0.015)	(0.047)	(0.021)	(0.047)	(0.020)	(0.021)	(0.012)	(0.030)	(0.014)
Non-Deposit Funding = L,	0.0281***	0.0067	0.0281**	0.0067	0.0218**	0.0057	0.0179***	0.0107***	0.0229***	0.0050
	(0.009)	(0.004)	(0.012)	(0.005)	(0.011)	(0.005)	(0.005)	(0.003)	(0.008)	(0.004)
Liquidity = L,	0.0426***	0.0219***	0.0426***	0.0219***	0.0415***	0.0203***	0.0226***	0.0131***	0.0404***	0.0207***
	(0.011)	(0.005)	(0.013)	(0.006)	(0.013)	(0.006)	(0.006)	(0.003)	(0.010)	(0.005)
D1995	0.0359	0.0393***	0.0359	0.0393***	0.0295	0.0421***	0.0382***	0.0332***	0.0260	0.0402***
	(0.026)	(0.012)	(0.026)	(0.011)	(0.024)	(0.011)	(0.009)	(0.005)	(0.024)	(0.011)
D1998	0.0341	0.0431***	0.0341	0.0431***	0.0325	0.0453***	0.0322***	0.0318***	0.0304	0.0442***
	(0.024)	(0.011)	(0.024)	(0.011)	(0.022)	(0.010)	(0.008)	(0.005)	(0.022)	(0.010)
D1999	-0.0102	-0.0033	-0.0102	-0.0033	-0.0126	-0.0039	-0.0016	-0.0027	-0.0135	-0.0040

	(0.011)	(0.005)	(0.012)	(0.005)	(0.012)	(0.005)	(0.004)	(0.002)	(0.010)	(0.005)
D2002	0.0763***	0.0530***	0.0763***	0.0530***	0.0742***	0.0580***	0.0528***	0.0436***	0.0726***	0.0569***
	(0.026)	(0.012)	(0.027)	(0.012)	(0.025)	(0.011)	(0.009)	(0.006)	(0.025)	(0.011)
D2005	-0.0123	-0.0047	-0.0123	-0.0047	-0.0144	-0.0050	-0.0018	-0.0044	-0.0158	-0.0052
	(0.013)	(0.006)	(0.014)	(0.006)	(0.014)	(0.006)	(0.005)	(0.003)	(0.013)	(0.006)
D2007	-0.0141*	0.0045	-0.0141*	0.0045	-0.0135*	0.0055	-0.0043	0.0017	-0.0136*	0.0057
	(0.008)	(0.004)	(0.007)	(0.004)	(0.008)	(0.004)	(0.004)	(0.002)	(0.008)	(0.004)
D2012	-0.0017	0.0001	-0.0017	0.0001	-0.0037	-0.0037	-0.0015	-0.0014	-0.0038	-0.0035
	(0.009)	(0.004)	(0.008)	(0.004)	(0.008)	(0.004)	(0.004)	(0.002)	(0.009)	(0.004)
D2014	0.0028	0.0017	0.0028	0.0017	0.0017	-0.0003	-0.0031	-0.0015	0.0012	-0.0004
	(0.011)	(0.005)	(0.010)	(0.005)	(0.010)	(0.006)	(0.004)	(0.002)	(0.011)	(0.005)
Crisis1	0.0491*	0.0568***	0.0491*	0.0568***	0.0489*	0.0599***	0.0289***	0.0338***	0.0430*	0.0595***
	(0.027)	(0.012)	(0.028)	(0.012)	(0.027)	(0.012)	(0.009)	(0.006)	(0.025)	(0.012)
Crisis2	0.0418***	0.0320***	0.0418**	0.0320***	0.0370**	0.0353***	0.0180***	0.0219***	0.0363**	0.0344***
	(0.016)	(0.007)	(0.017)	(0.007)	(0.016)	(0.007)	(0.006)	(0.003)	(0.015)	(0.007)
Crisis3	0.0036	0.0011	0.0036	0.0011	0.0036	0.0009	-0.0051	-0.0002	0.0040	0.0013
	(0.009)	(0.004)	(0.008)	(0.004)	(0.008)	(0.004)	(0.004)	(0.002)	(0.009)	(0.004)
Constant	0.0062	-0.0218	0.0062	-0.0218	0.0153	-0.0177	0.0013	-0.0140*	0.0190	-0.0147
	(0.030)	(0.015)	(0.033)	(0.015)	(0.033)	(0.015)	(0.012)	(0.007)	(0.029)	(0.015)
Observations	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914
R-squared	0.78	0.81	0.78	0.81	0.83	0.84				

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Columns (1)-(2): Pooled OLS with iid errors. (3)-(4): Pooled OLS assuming panels heteroskedastic. (4)-(5): Pooled OLS assuming panel spesific AR(1) error and panels heteroskedastic. (5)-(6): FGLS assuming panel spesific AR(1) error and panels heteroskedastic. (7)-(8): FGLS assuming panel spesific AR(1) error and panels heteroskedastic. (9)-(10): FGLS assuming panel spesific AR(1) error and panels correlated and heteroskedastic.

Table C19. Pooled OLS and FGLS Models Considering Financial Cycle for 1993:Q4-2014:Q3

	Pooled OLS						FGLS			
VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset	(5) CAR	(6) Equity to Asset	(7) CAR	(8) Equity to Asset	(9) CAR	(10) Equity to Asset
CAR = L,	0.8260***		0.8260***		0.8328***		0.8378***		0.8247***	
	(0.011)		(0.017)		(0.017)		(0.010)		(0.011)	
LEV = L,		0.8478***		0.8478***		0.8411***		0.8532***		0.8322***
		(0.011)		(0.015)		(0.016)		(0.010)		(0.011)
Cycle2	-0.2735***	-0.1160**	-0.2735***	-0.1160**	-0.2803***	-0.1246***	-0.1340***	-0.0977***	-0.2845***	-0.1208***
	(0.101)	(0.046)	(0.098)	(0.046)	(0.100)	(0.046)	(0.040)	(0.022)	(0.097)	(0.045)
Cycle2*Crisis1	-0.4939	-0.3601	-0.4939	-0.3601	-0.5356	-0.3993	-0.3884	-0.9696***	-0.6728	-0.3369
	(0.846)	(0.389)	(1.009)	(0.421)	(0.949)	(0.407)	(0.298)	(0.196)	(0.808)	(0.375)
Cycle2*Crisis2	-1.3131**	-0.6486***	-1.3131**	-0.6486**	-1.3120**	-0.7088***	-0.7699***	-0.3043***	-1.2642**	-0.6815***
	(0.536)	(0.246)	(0.602)	(0.257)	(0.546)	(0.241)	(0.202)	(0.114)	(0.503)	(0.233)
Cycle2*Crisis3	0.0204	0.0015	0.0204	0.0015	0.0231	0.0158	0.0593	0.0049	0.0271	0.0151
	(0.093)	(0.043)	(0.082)	(0.043)	(0.081)	(0.042)	(0.037)	(0.019)	(0.088)	(0.041)
risk = L,	0.0864***	0.0333***	0.0864**	0.0333**	0.0665*	0.0273*	0.0926***	0.0210***	0.0796***	0.0309***
	(0.021)	(0.009)	(0.039)	(0.015)	(0.038)	(0.015)	(0.015)	(0.006)	(0.019)	(0.009)
Size = L,	-0.0031***	-0.0013**	-0.0031**	-0.0013**	-0.0033**	-0.0018***	-0.0017***	-0.0010***	-0.0033***	-0.0019***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
ROA = L,	0.0159	0.0043	0.0159	0.0043	0.0153	0.0154	0.0238	0.0182	0.0100	0.0183
	(0.032)	(0.015)	(0.047)	(0.021)	(0.047)	(0.020)	(0.022)	(0.012)	(0.030)	(0.014)
Non-Deposit Funding = L,	0.0280***	0.0063	0.0280**	0.0063	0.0218**	0.0056	0.0180***	0.0106***	0.0228***	0.0048
	(0.009)	(0.004)	(0.012)	(0.005)	(0.011)	(0.005)	(0.005)	(0.003)	(0.008)	(0.004)
Liquidity = L,	0.0413***	0.0209***	0.0413***	0.0209***	0.0403***	0.0190***	0.0204***	0.0128***	0.0394***	0.0194***
	(0.011)	(0.005)	(0.013)	(0.006)	(0.013)	(0.006)	(0.006)	(0.003)	(0.010)	(0.005)
D1995	-0.0740***	-0.0295**	-0.0740***	-0.0295**	-0.0727***	-0.0323***	-0.0375***	-0.0057	-0.0718***	-0.0318***
	(0.025)	(0.012)	(0.028)	(0.012)	(0.026)	(0.011)	(0.010)	(0.005)	(0.024)	(0.011)
D1998	-0.0892***	-0.0332***	-0.0892***	-0.0332***	-0.0833***	-0.0366***	-0.0421***	-0.0123**	-0.0815***	-0.0354***
	(0.023)	(0.010)	(0.026)	(0.011)	(0.024)	(0.010)	(0.009)	(0.005)	(0.021)	(0.010)
D1999	-0.0041	-0.0010	-0.0041	-0.0010	-0.0068	-0.0014	0.0022	-0.0005	-0.0078	-0.0017

	(0.011)	(0.005)	(0.012)	(0.005)	(0.012)	(0.005)	(0.004)	(0.002)	(0.011)	(0.005)
D2002	-0.0516**	-0.0230**	-0.0516*	-0.0230**	-0.0458*	-0.0241**	-0.0337***	-0.0016	-0.0433*	-0.0227**
	(0.024)	(0.011)	(0.027)	(0.012)	(0.026)	(0.011)	(0.010)	(0.005)	(0.023)	(0.011)
D2005	0.0189	0.0083	0.0189	0.0083	0.0170	0.0088	0.0136**	0.0068*	0.0160	0.0082
	(0.017)	(0.008)	(0.017)	(0.008)	(0.017)	(0.008)	(0.007)	(0.004)	(0.017)	(0.008)
D2007	-0.0022	0.0100**	-0.0022	0.0100**	-0.0013	0.0112**	0.0018	0.0064***	-0.0013	0.0112***
	(0.009)	(0.004)	(0.008)	(0.004)	(0.009)	(0.004)	(0.004)	(0.002)	(0.009)	(0.004)
D2012	0.0081	0.0030	0.0081	0.0030	0.0061	-0.0001	0.0069*	0.0013	0.0061	-0.0002
	(0.009)	(0.004)	(0.008)	(0.004)	(0.008)	(0.004)	(0.004)	(0.002)	(0.009)	(0.004)
D2014	0.0163	0.0062	0.0163	0.0062	0.0153	0.0048	0.0076*	0.0026	0.0149	0.0045
	(0.012)	(0.005)	(0.010)	(0.005)	(0.010)	(0.006)	(0.004)	(0.002)	(0.011)	(0.005)
Crisis1	-0.0559**	-0.0112	-0.0559*	-0.0112	-0.0475*	-0.0119	-0.0387***	0.0025	-0.0492**	-0.0107
	(0.026)	(0.012)	(0.029)	(0.012)	(0.028)	(0.012)	(0.010)	(0.006)	(0.025)	(0.011)
Crisis2	-0.0318	-0.0129	-0.0318	-0.0129	-0.0324	-0.0132	-0.0303***	-0.0030	-0.0304	-0.0127
	(0.020)	(0.009)	(0.022)	(0.009)	(0.021)	(0.009)	(0.008)	(0.004)	(0.019)	(0.009)
Crisis3	0.0127	0.0022	0.0127*	0.0022	0.0128*	0.0025	0.0070**	0.0015	0.0129*	0.0025
	(0.008)	(0.004)	(0.007)	(0.004)	(0.007)	(0.004)	(0.003)	(0.002)	(0.007)	(0.003)
Constant	0.1138***	0.0489***	0.1138***	0.0489***	0.1147***	0.0580***	0.0661***	0.0239***	0.1143***	0.0588***
	(0.029)	(0.014)	(0.034)	(0.015)	(0.034)	(0.015)	(0.013)	(0.007)	(0.028)	(0.014)
Observations	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914
R-squared	0.78	0.81	0.78	0.81	0.83	0.84				

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Columns (1)-(2): Pooled OLS with iid errors. (3)-(4): Pooled OLS assuming panels heteroskedastic. (4)-(5): Pooled OLS assuming panel spesific AR(1) error and panels heteroskedastic. (5)-(6): FGLS assuming panel spesific AR(1) error and panels heteroskedastic. (7)-(8): FGLS assuming panel spesific AR(1) error and panels heteroskedastic. (9)-(10): FGLS assuming panel spesific AR(1) error and panels correlated and heteroskedastic.

Table C20. Fixed Effects Models for 1993:Q4-2014:Q3

VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset
CAR = L	0.7322***		0.7307***	
	(0.030)		(0.030)	
LEV = L		0.7871***		0.7853***
		(0.032)		(0.032)
Cycle1	-0.1026	-0.0239		
	(0.064)	(0.031)		
Cycle1*Crisis1	0.0169	-0.0212		
	(0.080)	(0.058)		
Cycle1*Crisis2	-0.3325	-0.3436***		
	(0.240)	(0.071)		
Cycle1*Crisis3	0.0163	0.0713		
	(0.061)	(0.044)		
Cycle2			-0.2923**	-0.1085**
			(0.123)	(0.045)
Cycle2*Crisis1			-0.5665**	-0.3561*
			(0.247)	(0.201)
Cycle2*Crisis2			-1.1575	-0.6127**
			(0.938)	(0.247)
Cycle2*Crisis3			0.0113	-0.0010
			(0.038)	(0.023)
Risk = L	0.1334***	0.0401**	0.1320***	0.0405**
	(0.042)	(0.018)	(0.041)	(0.019)
Size = L	-0.0113**	-0.0044	-0.0099**	-0.0040
	(0.005)	(0.003)	(0.005)	(0.003)
ROA = L	0.0769	0.0127	0.0819	0.0160
	(0.083)	(0.025)	(0.081)	(0.025)
D1995	0.0207	0.0352***	-0.0693	-0.0283**
	(0.025)	(0.007)	(0.043)	(0.013)
D1998	0.0246	0.0402***	-0.0814*	-0.0303**

	(0.024)	(0.006)	(0.041)	(0.012)
D1999	-0.0121**	-0.0029	-0.0059	-0.0008
	(0.005)	(0.002)	(0.006)	(0.001)
D2002	0.0797***	0.0510***	-0.0304	-0.0198
	(0.028)	(0.007)	(0.043)	(0.014)
D2005	-0.0154	-0.0035	0.0172	0.0085*
	(0.012)	(0.004)	(0.015)	(0.005)
D2007	-0.0147	0.0069	-0.0028	0.0117**
	(0.010)	(0.004)	(0.013)	(0.005)
D2012	-0.0013	0.0016	0.0082	0.0042
	(0.006)	(0.004)	(0.006)	(0.004)
D2014	0.0029	0.0038	0.0162***	0.0077***
	(0.006)	(0.003)	(0.006)	(0.003)
Crisis1	0.0275	0.0536***	-0.0577	-0.0088
	(0.023)	(0.008)	(0.043)	(0.014)
Crisis2	0.0379**	0.0300***	-0.0240	-0.0119
	(0.019)	(0.004)	(0.029)	(0.008)
Crisis3	0.0031	0.0006	0.0121**	0.0019
	(0.008)	(0.004)	(0.006)	(0.003)
Non-Deposit Funding = L	0.0345*	-0.0024	0.0328*	-0.0038
	(0.017)	(0.010)	(0.017)	(0.010)
Liquidity = L	0.0340*	0.0293**	0.0314*	0.0274**
	(0.019)	(0.011)	(0.019)	(0.011)
Constant	0.1340**	0.0290	0.2079**	0.0883**
	(0.058)	(0.041)	(0.081)	(0.043)
Observations	2,914	2,914	2,914	2,914
Number of groups	62	62	62	62

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Table C21. Pooled OLS and FGLS Models Considering Business Cycle for 2003:Q1-2014:Q3

	Pooled OLS						FGLS			
VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset	(5) CAR	(6) Equity to Asset	(7) CAR	(8) Equity to Asset	(9) CAR	(10) Equity to Asset
CAR = L,	0.8626***		0.8626***		0.8857***		0.8409***		0.8771***	
	(0.012)		(0.022)		(0.020)		(0.010)		(0.011)	
LEV = L,		0.8525***		0.8525***		0.8507***		0.8760***		0.8447***
		(0.017)		(0.025)		(0.024)		(0.012)		(0.016)
Cycle1	-0.0810*	-0.0920***	-0.0810*	-0.0920***	-0.0934*	-0.0884***	-0.0983***	-0.0705***	-0.0914*	-0.0885***
	(0.047)	(0.029)	(0.048)	(0.030)	(0.051)	(0.030)	(0.016)	(0.009)	(0.047)	(0.028)
Cycle1*Crisis3	0.0238	0.0850	0.0238	0.0850	-0.0290	0.0772	-0.0343	0.0950***	-0.0092	0.0805
	(0.145)	(0.090)	(0.145)	(0.092)	(0.136)	(0.088)	(0.044)	(0.028)	(0.138)	(0.085)
risk = L,	0.0470*	0.0387**	0.0470	0.0387	0.0198	0.0252	0.0892***	0.0193**	0.0222	0.0257*
	(0.025)	(0.015)	(0.043)	(0.024)	(0.040)	(0.023)	(0.018)	(0.008)	(0.024)	(0.015)
Size = L,	-0.0036***	-0.0021**	-0.0036***	-0.0021***	-0.0042***	-0.0028***	-0.0014***	-0.0009***	-0.0041***	-0.0029***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
ROA = L,	0.3607***	0.2465***	0.3607***	0.2465***	0.3275***	0.2538***	0.1488***	0.1095***	0.3511***	0.2556***
	(0.068)	(0.044)	(0.094)	(0.061)	(0.087)	(0.051)	(0.035)	(0.027)	(0.064)	(0.039)
Non-Deposit Funding = L,	0.0432***	0.0137**	0.0432***	0.0137	0.0388***	0.0128	0.0303***	0.0161***	0.0416***	0.0131**
	(0.010)	(0.007)	(0.015)	(0.010)	(0.015)	(0.010)	(0.007)	(0.004)	(0.010)	(0.006)
Liquidity = L,	0.0221**	0.0235***	0.0221	0.0235***	0.0105	0.0227**	0.0149**	0.0119***	0.0098	0.0220***
	(0.011)	(0.007)	(0.015)	(0.009)	(0.014)	(0.009)	(0.006)	(0.003)	(0.010)	(0.006)
D2005	0.0068	-0.0015	0.0068	-0.0015	0.0095	-0.0032	-0.0005	-0.0029**	0.0098	-0.0030
	(0.006)	(0.004)	(0.007)	(0.004)	(0.007)	(0.004)	(0.002)	(0.001)	(0.006)	(0.004)
D2007	-0.0136**	0.0040	-0.0136**	0.0040	-0.0143**	0.0061	-0.0044**	0.0016	-0.0151**	0.0060*
	(0.006)	(0.004)	(0.006)	(0.004)	(0.007)	(0.004)	(0.002)	(0.001)	(0.006)	(0.004)
D2012	0.0004	-0.0019	0.0004	-0.0019	-0.0013	-0.0055	0.0005	-0.0029**	-0.0011	-0.0056
	(0.006)	(0.004)	(0.006)	(0.004)	(0.007)	(0.004)	(0.002)	(0.001)	(0.006)	(0.004)
D2014	0.0055	0.0005	0.0055	0.0005	0.0038	-0.0012	0.0005	-0.0022	0.0036	-0.0015
	(0.008)	(0.005)	(0.007)	(0.005)	(0.008)	(0.005)	(0.003)	(0.002)	(0.008)	(0.005)

Crisis3	0.0043	-0.0058	0.0043	-0.0058	0.0029	-0.0058	-0.0020	-0.0037***	0.0037	-0.0055
	(0.007)	(0.004)	(0.007)	(0.004)	(0.008)	(0.005)	(0.002)	(0.001)	(0.007)	(0.004)
Constant	0.0560***	0.0364***	0.0560***	0.0364***	0.0662***	0.0486***	0.0355***	0.0238***	0.0660***	0.0495***
	(0.019)	(0.014)	(0.020)	(0.011)	(0.022)	(0.011)	(0.008)	(0.005)	(0.019)	(0.013)
Observations	1,332	1,332	1,332	1,332	1,332	1,332	1,331	1,331	1,331	1,331
R-squared	0.89	0.82	0.89	0.82	0.93	0.86				

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Columns (1)-(2): Pooled OLS with iid errors. (3)-(4): Pooled OLS assuming panels heteroskedastic. (4)-(5): Pooled OLS assuming panel spesific AR(1) error and panels heteroskedastic. (5)-(6): FGLS assuming panel spesific AR(1) error and panels heteroskedastic. (7)-(8): FGLS assuming panel spesific AR(1) error and panels heteroskedastic. (9)-(10): FGLS assuming panel spesific AR(1) error and panels correlated and heteroskedastic.

Table C22. Pooled OLS and FGLS Models Considering Financial Cycle for 2003:Q1-2014:Q3

	Pooled OLS						FGLS			
VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset	(5) CAR	(6) Equity to Asset	(7) CAR	(8) Equity to Asset	(9) CAR	(10) Equity to Asset
CAR = L,	0.8619***		0.8619***		0.8841***		0.8408***		0.8756***	
	(0.012)		(0.022)		(0.020)		(0.010)		(0.012)	
LEV = L,		0.8525***		0.8525***		0.8500***		0.8701***		0.8438***
		(0.017)		(0.025)		(0.024)		(0.011)		(0.015)
Cycle2	-0.1741*	-0.1773***	-0.1741*	-0.1773***	-0.1508	-0.1811***	-0.1755***	-0.1851***	-0.1523	-0.1821***
	(0.093)	(0.058)	(0.095)	(0.058)	(0.103)	(0.058)	(0.033)	(0.019)	(0.094)	(0.056)
Cycle2*Crisis3	0.0176	-0.0023	0.0176	-0.0023	0.0081	0.0124	0.0585***	-0.0084	0.0148	0.0113
	(0.066)	(0.041)	(0.065)	(0.042)	(0.067)	(0.041)	(0.021)	(0.013)	(0.064)	(0.039)
risk = L,	0.0451*	0.0359**	0.0451	0.0359	0.0191	0.0219	0.0772***	0.0065	0.0209	0.0219
	(0.025)	(0.015)	(0.043)	(0.024)	(0.040)	(0.024)	(0.018)	(0.008)	(0.024)	(0.015)
Size = L,	-0.0035***	-0.0019**	-0.0035***	-0.0019***	-0.0041***	-0.0027***	-0.0010*	-0.0007**	-0.0040***	-0.0027***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
ROA = L,	0.3593***	0.2447***	0.3593***	0.2447***	0.3202***	0.2552***	0.1311***	0.1067***	0.3434***	0.2570***
	(0.068)	(0.044)	(0.095)	(0.061)	(0.087)	(0.051)	(0.037)	(0.027)	(0.065)	(0.039)
Non-Deposit Funding = L,	0.0447***	0.0152**	0.0447***	0.0152	0.0398***	0.0143	0.0354***	0.0206***	0.0425***	0.0146**
	(0.010)	(0.007)	(0.015)	(0.010)	(0.015)	(0.010)	(0.007)	(0.004)	(0.010)	(0.006)
Liquidity = L,	0.0225**	0.0236***	0.0225	0.0236***	0.0111	0.0231***	0.0150**	0.0113***	0.0105	0.0225***
	(0.011)	(0.007)	(0.015)	(0.009)	(0.014)	(0.009)	(0.006)	(0.003)	(0.010)	(0.006)
D2005	0.0215**	0.0135**	0.0215**	0.0135**	0.0220**	0.0117*	0.0127***	0.0118***	0.0224**	0.0119**
	(0.010)	(0.006)	(0.010)	(0.006)	(0.011)	(0.006)	(0.004)	(0.002)	(0.010)	(0.006)
D2007	-0.0060	0.0124***	-0.0060	0.0124***	-0.0079	0.0144***	0.0029	0.0102***	-0.0086	0.0144***
	(0.007)	(0.004)	(0.007)	(0.004)	(0.008)	(0.005)	(0.003)	(0.001)	(0.007)	(0.004)
D2012	0.0071	0.0047	0.0071	0.0047	0.0053	0.0011	0.0080***	0.0025*	0.0054	0.0010
	(0.006)	(0.004)	(0.006)	(0.004)	(0.007)	(0.004)	(0.002)	(0.001)	(0.007)	(0.004)
D2014	0.0145*	0.0095*	0.0145*	0.0095*	0.0125	0.0079	0.0104***	0.0056***	0.0122	0.0076
	(0.009)	(0.005)	(0.008)	(0.005)	(0.009)	(0.005)	(0.003)	(0.002)	(0.009)	(0.005)

Crisis3	0.0110**	0.0015	0.0110**	0.0015	0.0115*	0.0009	0.0062***	0.0016	0.0118**	0.0012
	(0.006)	(0.003)	(0.005)	(0.003)	(0.006)	(0.004)	(0.002)	(0.001)	(0.006)	(0.003)
Constant	0.0452**	0.0244*	0.0452**	0.0244**	0.0556**	0.0372***	0.0202**	0.0131***	0.0555***	0.0381***
	(0.019)	(0.014)	(0.020)	(0.011)	(0.022)	(0.011)	(0.008)	(0.005)	(0.019)	(0.013)
Observations	1,332	1,332	1,332	1,332	1,332	1,332	1,331	1,331	1,331	1,331
R-squared	0.89	0.82	0.89	0.82	0.93	0.87				

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Columns (1)-(2): Pooled OLS with iid errors. (3)-(4): Pooled OLS assuming panels heteroskedastic. (4)-(5): Pooled OLS assuming panel spesific AR(1) error and panels heteroskedastic. (5)-(6): FGLS assuming panel spesific AR(1) error and panels heteroskedastic. (7)-(8): FGLS assuming panel spesific AR(1) error and panels heteroskedastic. (9)-(10): FGLS assuming panel spesific AR(1) error and panels correlated and heteroskedastic.

Table C23. Fixed Effects Models for 2003:Q1-2014:Q3

VARIABLES	(1) CAR	(2) Equity to Asset	(3) CAR	(4) Equity to Asset
CAR = L	0.7078***		0.7058***	
	(0.042)		(0.042)	
LEV = L		0.7576***		0.7693***
		(0.055)		(0.057)
Cycle1	-0.0765	-0.0874***		
	(0.055)	(0.027)		
Cycle1*Crisis3	0.0775	0.0969**		
	(0.052)	(0.043)		
Cycle2			-0.2860**	-0.1893***
			(0.129)	(0.050)
Cycle2*Crisis3			0.0606**	0.0182
			(0.027)	(0.020)
Risk = L	0.1932***	0.0340	0.1900***	0.0298
	(0.055)	(0.029)	(0.054)	(0.029)
Size = L	0.0124	0.0042	0.0170**	0.0075*
	(0.007)	(0.004)	(0.008)	(0.004)
ROA = L	0.1157	0.1283	0.1015	0.1194
	(0.131)	(0.116)	(0.134)	(0.119)
D2005	-0.0001	-0.0025	0.0233**	0.0130***
	(0.010)	(0.004)	(0.011)	(0.004)
D2007	-0.0256**	0.0025	-0.0159	0.0095*
	(0.010)	(0.004)	(0.013)	(0.005)
D2012	-0.0059	-0.0007	0.0021	0.0051
	(0.003)	(0.004)	(0.004)	(0.003)
D2014	-0.0039	0.0018	0.0074*	0.0099***
	(0.003)	(0.003)	(0.004)	(0.003)
Crisis3	0.0081	-0.0042	0.0138***	0.0025
	(0.007)	(0.004)	(0.004)	(0.003)
Non-Deposit Funding = L	-0.0141	-0.0386	-0.0169	-0.0353

	(0.026)	(0.024)	(0.026)	(0.025)
Liquidity = L	-0.0172	0.0456***	-0.0184	0.0445**
	(0.023)	(0.016)	(0.023)	(0.017)
Constant	-0.0731	-0.0164	-0.1399	-0.0703
	(0.088)	(0.057)	(0.090)	(0.059)
Observations	1,364	1,364	1,364	1,364

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Colums (1)-(2): Pooled OLS with iid errors. (3)-(4): Pooled OLS assuming panels heteroskedastic. (4)-(5): Pooled OLS assuming panel spesific AR(1) error and panels heteroskedastic. (5)-(6): FGLS assuming panel spesific AR(1) error and panels heteroskedastic. (7)-(8): FGLS assuming panel spesific AR(1) error and panels heteroskedastic. (9)-(10): FGLS assuming panel spesific AR(1) error and panels correlated and heteroskedastic.

Table C24. Impact of Regulatory Changes When They are Included to the Full Models one-by-one for the Whole Sample Period

	Cycle 1		Cycle2	
	CAR	Equity to Asset	CAR	Equity to Asset
D1995	-0.0466** (0.023)	-0.0205** (0.009)	-0.0455** (0.019)	-0.0179** (0.009)
D1998	-0.0253** (0.012)	-0.0060* (0.003)	-0.0263 (0.019)	-0.0027 (0.005)
D1999	0.0247* (0.013)	-0.0034 (0.005)	0.0218 (0.018)	-0.0017 (0.005)
D2002	0.0792*** (0.029)	0.0288*** (0.010)	0.1136*** (0.034)	0.0276** (0.012)
D2005	0.0293 (0.018)	0.0226*** (0.008)	0.0556*** (0.022)	0.0435*** (0.016)
D2007	0.0184 (0.017)	0.0250*** (0.009)	0.0223 (0.014)	0.0332** (0.013)
D2012	0.0029 (0.009)	0.0137** (0.007)	0.0032 (0.009)	0.0082 (0.005)
D2014	0.0092 (0.011)	0.0163** (0.008)	0.0086 (0.009)	0.0097 (0.008)

Table C25. Impact of Regulatory Changes When They are Included to the Full Models one-by-one for the Sub-sample Period

	Cycle 1		Cycle2	
	CAR	Equity to Asset	CAR	Equity to Asset
D2005	-0.0053 (0.012)	0.0111 (0.014)	0.0281 (0.019)	0.0167 (0.012)
D2007	-0.0217** (0.011)	0.0152 (0.016)	0.0106 (0.010)	0.0232** (0.010)
D2012	-0.0075 (0.007)	0.0062 (0.008)	0.0006 (0.011)	0.0023 (0.007)
D2014	-0.0046 (0.007)	0.0106 (0.011)	0.0209 (0.014)	0.0120 (0.010)