



16th Annual Conference on Finance and Accounting, ACFA Prague 2015, 29th May 2015

Increased Bank Capital Requirements: Neither Panacea nor Poison

Peter Majcher^{a,*}

^aUniversity of Economics, Faculty of National Economics, Dolnozemska cesta 1, 852 19 Bratislava, Slovakia

Abstract

Common understanding of the effects of increased bank capital is that the more capital banks have relatively to risks inherent to their portfolio, the safer the economy automatically becomes. On the other hand it is often argued that if capital requirements are increased, economic growth needs to be sacrificed. However there exist scientific and statistical evidence that higher capital requirements alone will not make banks safer and they will neither ruin them nor have a significant negative impact on bank lending hence on the economic growth.

© 2015 Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of University of Economics, Prague, Faculty of Finance and Accounting

Keywords: Basel III; Impact of increased capital requirements; Bank stability

1. Introduction

One of the main lessons that regulators took from the financial crisis was that the banking system held insufficient capital and post crisis regulatory framework should increase minimum capital requirements. Consequently common understanding of the effects of increased bank capital under Basel III is that the more capital banks have relatively to risks inherent to their portfolio, the safer the economy automatically becomes. On the other hand it is often argued that if capital requirements are increased, economic growth needs to be sacrificed as banks will not be able to lend to the economy under the same conditions or even that they will not be able to collect additional capital and lend at all.

The goal of this paper is to show that the reality is not that simple and that effects of increasing bank capital requirements in the context of Basel III are more mixed. There exists scientific and statistical evidence that higher

* Corresponding author.

E-mail address: peter.majcher@gmail.com

capital requirements alone will not make banks safer and they will neither ruin them nor have a significant negative impact on bank lending hence on the economic growth.

2. Capital requirements under Basel III in a nutshell

General principles of the redefined capital requirements are outlined in "Basel III: A global regulatory framework for more resilient banks and banking systems" (BCBS, first published in 2010, revised 2011 version is referenced going forward). First of all Basel III introduced two new capital buffers: a capital conservation buffer and a countercyclical capital buffer.

Capital conservation buffer represents capital that banks need to build up above minimum regulatory capital levels. In case banks comply with minimum regulatory capital ratios however fail to reach levels of capital conservation buffer, their profit distribution options will be limited until additional capital is collected either on capital markets or thanks to retained earnings. Other aspects of banks' operations will not be impacted as it would be in case if their capital levels fell below regulatory minimum. Even profit distribution options are not prohibited absolutely but only limited to the extent of the capital shortfall. The value of the buffer has been set up to 2,5% of risk-weighted assets (RWA) and needs to be covered with the top quality CET 1 capital.

As for countercyclical capital buffer, banks will be required to build up additional time-varying capital buffer gradually as imbalances in the credit and real estate markets are identified during times of excessive credit distribution. The amount of required additional capital varies between 0% and 2,5% of RWA which needs to be met by CET 1 capital. Thus accumulated capital can be released to cover for losses on credit portfolios in the event of negative market development, improving institutions' resiliency against systemic vulnerabilities and increasing the loss-absorbing capacity of the sector. The countercyclical capital buffer might also contribute to smoothing of credit and economic cycles as the additional capital requirements will evolve in the opposite direction as the economic cycle, the buffer being activated only in times of credit expansion which is generally associated with a booming part of the economic cycle. On the other hand in the event of a crisis, financial institutions will be able to release the buffer to cover for the losses as capital requirements will be lower and they will not need to cut on the credit distribution which would make the crisis even worse.

Not only has Basel III introduced additional capital requirements, a new and stricter definition of capital has been established as well as apart from quantity, quality of available capital was an issue as well. Both quantity and quality of Tier 1 capital was raised and it needs to be predominantly composed of Common Equity Tier 1 (CET 1) which is mainly common shares and retained earnings, additional Tier 1 capital such as preferred stocks is limited. Tier 2 capital is simplified and reduced and Tier 3 capital is completely eliminated. In terms of quantitative changes CET 1 minimum capital ratio increases from 2% to 4,5 % of risk-weighted assets, Tier 1 capital ratio is 6% at minimum and the importance of Tier 2 capital is reduced to the ratio of 2% of RWA. The 8% minimum requirement level as such has not been changed.

However taking into account additional buffers, required levels of CET 1 capital have raised considerably to between 7% and 9,5% of RWA depending on macroeconomic circumstances and total required capital to between 10,5% and 13%.

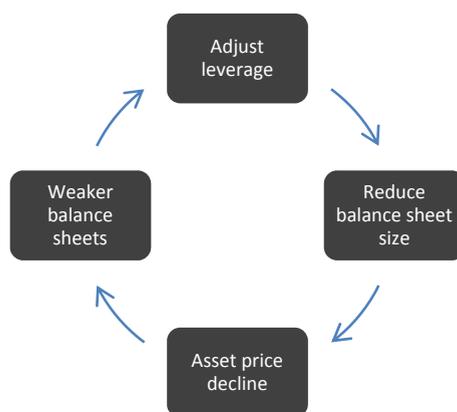
3. Increased risk based capital levels alone will not make banks safer

As inadequate banking regulation was blamed as one of the main causes at the origin of the financial crisis 2007-2009, Basel III Accord was reached in a much faster way than its predecessor in less than 2 years and its implementation is probably to be more universal than that of previous Basel Accords including the US fully on board. What is also important is that credit, market and operational risk adjusted capital requirements do no longer stand alone. Apart from already mentioned additional capital buffers and stricter capital definition, the financial crisis taught regulators additional lessons.

Events of the recent financial crisis clearly showed that capital adequacy regulations alone are not sufficient to make financial institution immune from risks. Northern Rock had one of the highest capital ratios in the UK when it failed (Walter, 2010), the 26th October 2011 issue of World Finance magazine even mentions a total capital adequacy ratio of 14.4 percent only eight days before it was nationalized in the times when eight percent was

required by regulators in line with Basel II. Five days before its bankruptcy Lehman Brothers had a “Tier 1” capital ratio of 11%, almost three times the regulatory minimum at the time (The Economist, 21st January 2010). Most financial institutions that went under actually did not have capital or credit risk issues as such; their bankruptcy was a result of liquidity mismanagement when they could not roll over their liabilities and sell their assets at non-fire sale prices. Not matter have high are capital levels, they cannot substitute for short term cash flows.

Pre-crisis regulatory framework focused on controlling behavior and risk management of individual financial institutions, however this approach has shown to be inadequate. The following situation illustrates how actions which are judged optimal for individual financial institutions can make the financial system collapse. In fact for spreading financial contagion it is not even necessary that an institution goes bust, it is sufficient that significant although short term asset price modifications take place in the market. Let's imagine that there is a steep fall of price of an asset held in large quantities by banks. In a situation of high leverage which is common for banks, the net value of bank equity declines faster than the asset price. One of ways how to decrease otherwise increasing leverage is to sell assets and pay off part of debts. Massive sell out however further decreases the asset price which will increase leverage of other banks holding the same asset. This will in turn lead other similarly thinking banks to sell their assets and create a loss spiral depicted below. This vicious cycle is emphasized by an increase of margin calls and haircuts on collateral covering banks debt.



Source: Brunnermeier et al. (2009)

Fig. 1: Loss spiral

Regulators have therefore shifted their focus to the so called macroprudential policies which should act against financial system risks which can have serious impact on real economic activity (Tarullo, 2013). The main purpose of these policies is to act as a counterbalance to natural decrease of observed risk in times of economic growth and its increase in the times of recession (Brunnermeier et al., 2009). Macroprudential policies differ from microprudential approaches as their primary goal is to protect the financial system as a whole, not just individual institutions and its stakeholders. Amongst the most important macroprudential policies implemented in the aftermath of the crisis apart from the previously discussed capital buffers were those focused on liquidity, leverage and systematically important institutions.

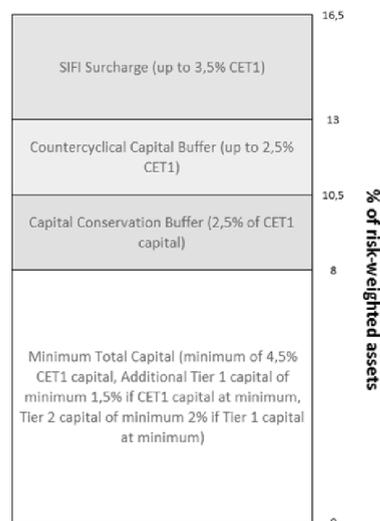
In the pre-crisis regulatory framework there were no liquidity and leverage requirements for most of financial institutions. The reason why the liquidity issue had not been properly addressed sooner was a belief that if a bank has necessary capital levels (i.e. in line with minimum capital requirements), it is able to finance itself on the market. Most financial institution has an imbalance between maturity of its assets and liabilities and are subject to the risk of funding liquidity. Institutions that rely on short term financing, usually do so through intermediary of short term debt and repurchase agreements and need to roll their debt constantly. Issues arise when funding (limited lending, high haircuts) and market (low asset prices caused by fire sales) liquidity are limited at the same time. Consequently in

the initial phase of the financial crises when liquidity was the main issue, even banks with sufficient capital levels were seriously troubled.

In this respect Basel III introduces a Liquidity Coverage Ratio aiming at increasing short term resiliency of banks against liquidity risks. This measure monitors whether banks have a sufficient stock of available highly liquid assets, which can be easily and immediately sold on the markets providing enough cash to cover for institution's liquidity needs for a period of 30 days. The ratio will be gradually implemented between 2015 and 2019. Compliance with the ratio will be required only under normal market circumstances, in times of financial troubles it will be lowered (BIS, 2013-2).

At the same time Basel III established restrictions on financial leverage, which represents ratio between capital and total exposure of the bank. Since 2013 banks need to report the ratio to regulators, in 2015 it should be made public and it is expected that it will be regulated starting 2018. Currently there are ongoing discussions and testing of hypothetical value of the ratio of 3% which will be subject to further analysis (BIS, 2013-1) however for instance US regulators considered a higher percentage of 6% which was as at the time fulfilled only by one of the six biggest US banks (Denning, 2013). European banks seem to do even worse in terms of leverage, some of the most important banks are not even compliant with the 3% suggested by Basel and already approved by Financial Policy Committee of the Bank of England with extra buffers for the biggest banks (The Economist, 8th November 2014).

There are also voices preferring the leverage ratio approach over the risk weighted capital ratios on the grounds that risk weights are partly determined by banks' own models, they create arbitrage opportunities, and the whole system can get overly complicated. FDIC Vice Chairman Thomas Hoenig calls for completely replacing risk based rules with a 10 percent leverage ratio with a narrower definition of capital and more complete inclusion of off balance sheet assets. This would be a large increase in capital requirements even compared to what Basel III brings. For instance under this proposal the three largest US banks would need to stop distributing dividends for about five years (Onaran, 2013). However compared to other industries, even 10% is very little – the average leverage ratio of non-financial FTSE 100 firms is 37% (The Economist, 8th November 2014). Banking is sure a specific industry based on lending and borrowing but most of the excessive leverage comes from protection supplied by governments in different forms, such as liquidity support from central banks, deposit insurance, implicit help guarantees and explicit bail outs. In fact Economist (21st January 2010) reminds that in the late 19th century a typical American or British bank would have core capital equivalent to 15-25% of its assets.



Source: Author based on BCBS (2011) and BCBS (2013).

Fig. 2. Capital requirements under Basel III

In addition to measures governing leverage and liquidity, there are also attempts to limit negative externalities related to financial institutions whose bankruptcy is not acceptable due to their size, interconnectedness and global

impact. A capital surcharge for such so called systematically important financial institutions (SIFIs) is implemented in the framework of Basel III. The surcharge will be between 1% and 3,5% of RWA depending on the systematic risk posed by the institution as judged by Financial Stability Board and can make a minimum capital requirement of a SIFI up to 16,5% of mostly CET 1 capital in case countercyclical capital buffer kicks in.

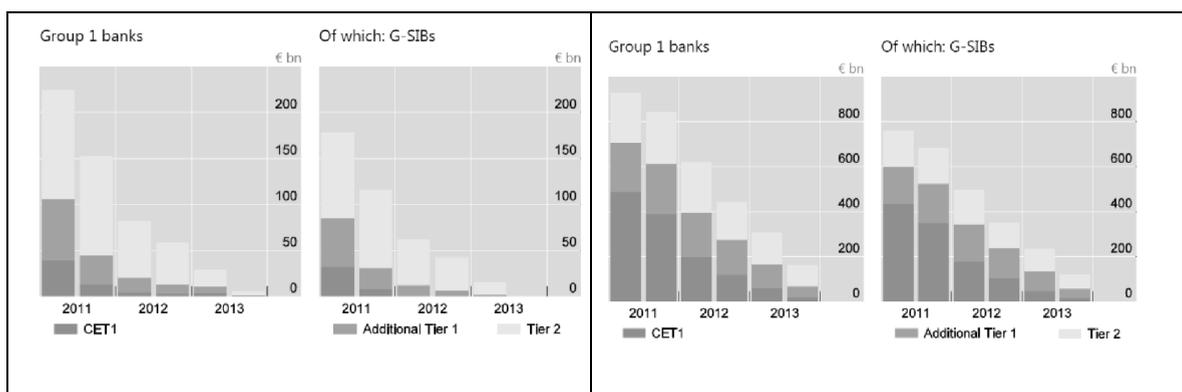
4. Most banks can easily collect additional capital needed to comply with Basel III

Basel Committee on Banking Supervision set up a monitoring framework to assess impacts of Basel III on banks. On a semiannual basis data on capital and other ratios are collected by national supervisors on a representative sample of institutions in each country. Its September 2014 report (BCBS, 2014) was based on data from 227 banks from all 27 Committee member countries, in many countries data from all the biggest banks (so called Group 1 banks with Tier 1 capital over € 3 billion and internationally active) were captured. Analyzing smaller banks from so called Group 2 is less interesting as in terms of capital level they represent only 10% of the total. The reports offer evidence of important increase of banks capital ratios in the post crisis period.

The report gives also interesting insights into capital levels of banks according to different capital definitions under Basel III and the current regulatory framework implemented locally, furthermore it also quantifies resulting capital shortfalls under Basel III. It shows that new Basel III capital group definitions are still far from being fully implemented locally and these differences can be quite significant. For instance the total capital ratio of Group 1 banks would have decreased from 15% under current local rules to 11,9 % if the rules fully reflected Basel III.

When looking at Group 1 banks including SIFIs, there is virtually no shortfall of risk-based capital (€ 5,1 billion in total) when comparing with the minimum requirements of fully implemented Basel III. When it comes to Basel III target requirement including capital conservation buffer and capital surcharge for SIFIs, almost € 160 billion of aggregated shortfall (i.e. the sum across individual banks with a shortfall) is observed in the group of over 100 Group 1 banks. However out of this sample only one bank's CET1 ratio is below regulatory 4,5% and one more bank is below targeted 7%. Median values for Group 1 banks are 10,5 % for CET1, 11% including Tier 1 capital and 12,7% in total. Historically both minimum and target requirements shortfalls decreased considerably.

Anyway the shortfall both for minimum and target values of total capital is rather insignificant (€5,1 bn and €159,4 bn respectively) given that in total Group 1 banks already held at the same period over € 3 000 billion of capital. Also as a point of reference, the report states that the sum of profits after tax prior to distributions across the same sample of Group 1 banks during the year ending 31 December 2013 was €419 billion, therefore even if we cannot judge on individual institution level, globally the sector can easily comply with the requirements, which is also evident from the following graphics showing steep decline in capital shortfalls both at the minimum and target level. b



Source: BCBS, 2014.

Fig. 3. (a) Estimated capital shortfalls at the minimum level; (b) Estimated capital shortfalls at the target level

It is also rather surprising how banks adapted to higher capital requirements – there were no massive issuances of new equity, no significant cutting down on banks' loan portfolios, selling assets or reducing their riskiness. On a sample of 82 large global banks Cohen (2013) showed that retained earnings accounted for most of the increase in risk weighted capital ratios in the period of 2009-12. Banks from advanced economies achieved the increase through reduced dividends payouts and banks in emerging economies leveraged their high earnings over the period. The key finding is that the capital ratio adjustment has to large extent taken place through the accumulation of retained earnings and not through changes in lending or asset growth.

5. No significant slowdown of economy should be expected after increasing bank capital levels

Bank industry usually argues that raising capital requirements will weaken banks, increase their funding costs because of higher risk profile of equities and consequently these costs will be passed on to borrowers making borrowing more expensive. This type of argumentation is not in line with one of the cornerstones of corporate finance, the Modigliani-Miller theorem, which with some simplification states that market value of a firm is independent of the way it finances its investments or distributes dividends. There are three basic methods of financing: getting additional capital, i.e. issuing shares, then there is borrowing and finally spending profits instead of distributing them to shareholders. Any changes in lending after capital requirements increase would mean that Modigliani-Miller theorem, one of the central pillars of finance theory, does not hold in practice. In reality debt financing is largely preferred over equity because of distortions created by public policies, especially tax policies giving advantage to debt and penalizing equity and implicit guarantees by the government which is less likely to let down institutions owners than its debtors.

Anat Admati (2010) argues however that this does not need to be this way and that "quite simply, bank equity is not expensive from a social perspective, and high leverage is not required in order for banks to perform all their socially valuable functions, including lending, taking deposits, and issuing money-like securities". Her main point is that when leverage is reduced, equity becomes less risky and the cost of equity goes down, which should not make any change in the value of financial institutions to their stakeholders. In other words, the more equity there is in the funding mix of a company, the lower the risk of the equity and thus its cost.

Initially many Basel III impact studies suggested a more or less significant slowdown of economy as consequence of higher capital requirements, such as bank industry affiliated Institute of International Finance (2011) predicting that in order to absorb increased capital requirements, banks would need to raise lending rates, which would take loan volumes down and cause annual 0,6% hit to GDP growth in the US, the Eurozone and Japan and create over 7 million job losses. Roger and Vlček (2011) predicted a cumulative decrease in GDP of around 1% and Macroeconomic Assessment Group established by the Financial Stability Board and the BCBS (MAG, 2010) estimated that annual growth would be reduced by 0,03% during first 35 quarters after implementation.

However in spite of capital requirements gone up significantly, "lending spreads have barely moved, banks interest margins are down and loan volumes are up" (Cecchetti, 2014). The same author argues that the macroeconomic impact of the after crisis increase in capital requirements was either imperceptibly small or was neutralized by monetary policy actions, i.e. low rates and unconventional monetary measures. Also Cohen (2013) observed that in spite of steadily increasing their capital ratios since the crises, large global banks continued to expand their lending.

For the time being we still lack sufficient empirical evidence of effects on lending that macroprudential capital requirements might have. Bridges et al (2014) have analyzed effects of changing regulatory capital requirements on bank capital and bank lending in the context of bank-specific and time-varying capital requirements in place between 1990 and 2011 in the UK. It cannot be directly used for predicting macroeconomic effects of macroprudential capital requirements such as those introduced by Basel III, however it provides an indication on how banks might respond to increased capital requirements. What has been observed is that after capital requirements are increased, banks' capital buffers above the regulatory minimum are consumed to comply and banks reduce their lending until they gradually restore the buffers that they originally had which takes typically between 3 and 4 years. The credit reduction is materialized more in the real estate sector and less in other credit types. Such a reduction is only temporary and reaches 0,8% reduction in quarterly loan growth per one percentage point of increase the first year. Gradually as the bank accumulates capital to restore its buffer, loan growth returns to its long term trend.

Even if increasing capital requirements is associated with costs in the short term, the long term benefits in terms of increased stability of the financial system should be much higher. When estimated basis points of sacrificed real output are compared to tens or even hundreds of percent of GDP lost in financial crisis, the stability should be favored. While impact of increased capital requirements has only been modelled and estimated, it is known what were the costs of the last crisis – it has been quantified that the cumulated output loss might amount up to 90% of 2009 world GDP (Danthine, 2012). An overview of over 20 studies performed by BCBS (2010) suggests that historically consequences of financial crisis are enormous – median value of incurred costs is of 63% of pre-crisis output and the estimated average cost is even over 100%.

There is a reason to believe that stronger capital requirements will not give rise to considerable, permanent economic costs in the long term. On the other hand, in a transitional phase, higher buffers may have a non-significant negative impact on growth in total credit and GDP.

6. Conclusion

Basel III sure brings solutions to risks identified during the financial crisis. What is different this time is that increased risk weighted capital requirements alone are no longer believed to cure all shortcomings of the financial sector and macroprudential elements are considered as well, especially leverage, liquidity, procyclicality and systemic risk they create. Nevertheless capital requirements remain the backbone of the regulation framework and have increased considerably to the general dismay of the banking industry. The post-crisis development has however shown that large majority of banks can easily collect additional capital needed to comply with Basel III and they do so mainly through retained earnings. There is also no evidence that the increased capital requirements would have a significant negative impact on lending and economic growth as initially feared.

References

- Basel Committee on Banking Supervision (BCBS), 2010. An assessment of the long-term economic impact of stronger capital and liquidity requirements.
- Basel Committee on Banking Supervision (BCBS), 2011. Basel III: A global regulatory framework for more resilient banks and banking systems (revised version).
- Basel Committee on Banking Supervision (BCBS), 2013. Global systemically important banks: updated assessment methodology and the higher loss absorbency requirement.
- Basel Committee on Banking Supervision (BCBS), 2014. Basel III Monitoring Report, September 2014.
- Bank for International Settlements (BIS), 2013-1. Revised Basel III leverage ratio framework and disclosure requirements.
- Bank for International Settlements (BIS), 2013-2. Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tool.
- Bridges, J. et al, 2014. The impact of capital requirements on bank lending. Bank of England Working Paper No. 486.
- Brunnermeier, M. et al., 2009. The fundamental principles of financial regulation. Geneva Reports on the World Economy 11.
- Cecchetti, S.G., 2014. The jury is in. CEPR Policy Insight No. 76, December 2014.
- Cohen, B.H., 2013. How have banks adjusted to higher capital requirements? BIS Quarterly Review, September 2013, 25-41.
- Danthine, J.-P., 2012. Taming the financial cycle. 30th SUERF Colloquium, Zurich, 5 September 2012.
- Denning, S., 2013. Will higher capital requirements make the banking system safe? *Forbes* 6/25/2013.
- Institute of International Finance (IIF), 2011. The Cumulative Impact on the Global Economy of Changes in the Financial Regulatory Framework.
- Macroeconomic Assessment Group (MAG), 2010. Final Report. Assessing the macroeconomic impact of the transition to stronger capital and liquidity requirement.
- Onaran, Y., 2013. US weighs doubling leverage standard for biggest banks. *Bloomberg* 06/21/2013.
- Roger, S. and Vlček, J., 2011. Macroeconomic Costs of Higher Bank Capital and Liquidity Requirements. International Monetary Fund Working Paper 11/103.
- Tarullo, D.K., 2013. Macroprudential Regulation. Speech at the Yale Law School Conference on Challenges in Global Financial Services. September 20, 2013.
- The Economist, 2010. Base Camp Basel. 21st January 2010.
- The Economist, 2014. Never lever land. 8th November 2014.
- Walter, S., 2010. Basel III and Financial Stability. Speech at the 5th Biennial Conference on Risk Management and Supervision, Financial Stability Institute, Bank for International Settlements, Basel, 3-4 November 2010.
- World Finance, 2011. Key risk elements in post-crisis finance. 26th October 2011.