Basel III

A global regulatory framework for more resilient banks and banking systems

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Abstract—Basel III is a global regulatory standard on bank capital adequacy, stress testing and market liquidity risk, created by the Basel Committee on Banking Supervision in December of 2010 and constantly revised. Its implementation is scheduled to begin in 2013 and finish in 2018. The need for the development of this accord came as a response to the failure of the previous accord to prevent the late-2000s financial crisis. Basel III is intended to strengthen the bank capital requirements, that were introduced in the former Basel accord and also it introduces regulatory requirements on bank liquidity and a leverage ratio to limit the uncontrolled banking activity.

1. Introduction

In this part we are going to discuss the reasons that brought the economy to a place that needs a global regulatory framework for the banking system and also how the third Basel accord emerged from the second one.

A. In the need of a global regulatory framework

In the aftermath of the financial crisis, government institutions worldwide face the questions of how to regulate the financial markets. The free-market model can sometimes lead to failures and inefficiencies, and the banking industry is not relieved from that. Commercial banks serve different and much important purposes in the economy, one of these is to create liquidity by lending long and borrow short.

Banks are today based on this system of fractional reserves where some part of the money that the bank borrows is lent to someone in need of liquid asset; the bank will then in turn earn the interest rate difference between the lending and the borrowing, so the short term borrowing finances the bank’s lending business which it profits from. Since they lend long, the assets they acquire from lending are not liquid and therefore they must have enough reserves to be able to cover peoples short demand for money.

The whole banking system works fine under normal circumstances, but it could fail if a big enough number of lenders suddenly decided to cash out at the same time. Bank-runs have historically occurred in times of global financial crises; situations that are unusual for the economy and because they are also based on peoples expectations and psychological group behaviour they become very hard to foretell. Sudden shocks in the economy can develop into larger crises and these shocks can be viewed as random since they are very difficult and many times impossible to predict. A very well-known example is the sudden recession of 1929, where one of the consequences was a massive bank-run in the U.S. and many banks defaulted because of the sudden shock in the withdrawal of the deposits.

A way to stop a bank-run is to impose a suspension on convertibility; temporarily stop all deposit withdrawal. Another way of stopping it is to insure the banks deposits, which Diamond and Dybvig argue is actually a better way to do it [1]. Governments have all reasons to prevent bank crises. The negative economic consequences can be quite big if the negative expectations spread and nothing is done quickly enough. The problem is that the deposit insurances can get quite expensive and there also exists some other problems because when governments insure the banks deposit then they also shift over the risk to themselves and thus also the consequent moral hazard involved shifts. The bank’s profits increase with a smaller reserve ratio but then also the risk increases for the bank. If that risk is covered by central banks or other institutions then banks tend to be more risk-taking in their behaviour. If governments insure the banks deposits they must regulate how banks are allowed to behave and thus protect themselves from moral hazard.

The Basel Committee on Banking Supervision introduced the first Basel accord in 1988 with the purpose to finally establish an agreement on an
international standard for the banking industry. As the markets evolved, though, new regulations were needed and so the Basel II accord was created in 2004 with the scope to face the new challenges set by the new reality. So the belief behind Basel II was that such an international standard could help protect the global financial system from the types of problems that might arise, should a major bank or a series of banks collapse.

B. From Basel II towards to Basel III

Basel II was initially published in June of 2004 and was intended to create an international standard for banking regulators to control how much capital the banks need to put aside, in order to guard against the types of financial and operational risks that they, and the whole economy, face.

This regulatory standard is defined by a "three pillars" concept [2] & [3]:

1) The minimum capital requirements, which deals with maintenance of regulatory capital calculated for three major components of risk that a bank faces: credit risk, operational risk, and market risk. So the banks were required to put aside at least an 8% of their total capital over their risk weighted assets.

2) The supervisory review process, which dealt with the regulatory response to the first pillar, giving regulators much more improved "tools", over those available to them under Basel I, in order to ensure that the minimum capital requirements are being met.

3) The market discipline, which aimed to complement the minimum capital requirements and supervisory review process by developing a set of disclosure requirements which would allow the market participants to gauge the capital adequacy of an institution.

In simple words, with Basel II banks were required to put aside a certain percentage of their total capital over their risk weighted assets, so that in the case of an emergency they would not go bankrupt. In order to ensure that, the regulators of the banking system were being given some "tools" that would help them check whether the first pillar's requirements are being met or not. In addition to that, the market also has the responsibility to keep an eye on the behaviour of the banks towards the first pillar.

Basel III is a more drastic approach to the problem of regulating the banking system and it was introduced even though Basel II was never fully implemented. This was to be expected as the financial crisis of 2008 significantly elevated the demands for better regulatory standards, for the reduction of the probability of more bank failures. The new Basel accord actually strengthens the regulations introduced by the previous one and, furthermore, it introduces some new concepts. It should be noted, though, that it is not fully completed yet, many of its details are getting corrected and new things are being added, but the core of the accord is considered to be complete.

The first significant change is that of the percentage of the total capital over the risk weighted assets that the banks are required to put aside. So with the new accord it is required that the minimum ratio has to be raised from the 8%, that Basel II demanded, to 10.5% – 13% for the total capital when the new accord is going to be fully applied [10].

The leverage ratio concept is something new to be introduced in Basel III and the main idea is to limit the activities that a bank can develop compared to its own capital. Thus a leverage ratio of 3% is being introduced and because of the fact that it is not a risk based ratio it does not have the disadvantage of under-evaluation of the various risks that can lead to risky banking activities.

Probably the most important element added by Basel III is the concept of liquidity and it consists of a short term and a long term liquidity ratio. The liquidity coverage ratio (as the short-term ratio is more formally known) is aimed at ensuring that banks have enough high-quality liquid assets to cover 30 days of net outflows following a short-term liquidity crisis, and on the basis of a scenario that is being defined by the regulator. The net stable funding ratio (long-term ratio) is introduced in order to protect the banks from the consequences of liquidity crisis connected with long-term assets, such as loans and securities [6].

Finally, Basel III strengthens the supervisory standards of the second pillar and raises the standards for market disclosure that were introduced in the third pillar [8]. These were the most important changes and additions to the new Basel accord and they are going to be reviewed more analytically in the sections that follow.

II. Basel III

In this part we are going to present the main changes that were made to the second Basel accord along with the new elements that were introduced to Basel III.
A. Minimum Capital Requirements

The capital requirements are based on the concept of Risk Weighted Assets (RWA) that also are included in Basel I and Basel II. Whenever a bank lends out money they face a credit risk; the risk that the borrower will default and not be able to pay back the loan. This credit risk is determined by who the borrower is; if the borrower is more likely to default and not be able to pay his debts then the credit risk is much higher. One thing to remember is that if the risk is high the lender also demands a higher return on its investment.

When things go bad, governments will do what it takes for the system not to collapse. The banking system is so interconnected that it spreads like a domino-effect between banks if no measure is taken, and governments can not let that happen because banks, as stated earlier, serve an important purpose in the economy. For the bank, it is therefore attractive to lend out at high risk knowing that the government will back them up.

To calculate the total of the bank's risk weighted assets you have to split up the assets and determine a certain risk-weight to each asset, the sum of the weighted assets determine the total of the banks risk-weighted assets. The idea behind a risk-based leverage ratio is that when crises occur, the bank is expected to lose part of those risk-weighted assets and thus they must be covered by common equity¹ in the bank. These risk-based leverage limits are much higher in Basel III than they were in Basel II.

The new rules say that a minimum of 4.5% of the risk-weighted assets should be covered by common equity. But this is not enough; Basel III demands an additional 2.5% Capital Conservation Buffer. If they breach the buffer they must retain any dividends² to share-holders. In practice, banks will not go below the buffer so the effective coverage would then be 7% of RWA. In addition to that, Basel III allows governments to add a counter-cyclical buffer when they feel the need for it. This is done by an announcement from the government and the purpose is to stop the bubbles before they burst. In total the new Risk-Based Capital Requirements are a considerable change from the Basel II regulations.

The difficulty with only having a risk-based leverage ratio is the estimation of the risk; what can be considered a non-risky asset, it might actually be riskier than what was firstly being estimated. The evaluation of the risk-weight added to a specific asset depends on market-risk, liquidity-risk and credit-risk of the borrower. Basel II was deficient in this aspect because the credit valuation was in many time wrong and banks could have huge leverage covered by non-risky assets that actually were riskier than what was put on the bank's balance sheets.

B. Leverage Ratio

In the late 20th century financial crisis, many financial institutions had made large investments in sub-prime-securities and since they were very big banks with a long history these companies bonds were very often treated with a low risk-weight. Who would have thought that Lehman Brothers, which was founded more than 150 years ago and with all its history, would collapse? Or in the light of today's crisis what risk weight would we have been right to put some years ago on Greek government bonds?

There exists a problem in using only a risk-based leverage ratio; it is that if the banks wanted they could easily increase their risk-exposure and game away the restricton by leveraging without limit with non-risky assets. Basel III has therefore also a minimum leverage ratio of 3% that is not based on the risk-weights. The risk-weighted leverage ratio and the non-risk-weighted leverage ratio complement each other.

This leverage ratio is not intended to be a binding instrument at this stage but as an "additional feature that can be applied on individual banks at the discretion of supervisory authorities with a view to migrating to a binding ("Pillar one") measure in 2018, based on appropriate review and calibration." This new "tool" is the ratio of an institution's capital measure divided by its total exposure [10].

C. Liquidity

Bank liquidity standards are something that seems to have escaped the attention of the international community for many years and been left to each country to decide how to set them. This is intended to be changed with Basel III and so two liquidity ratios are being introduced; one short-term and one long-term, the liquidity coverage ratio (LCR) and the net stable funding ratio respectively (NSFR). The LCR should be reported at least monthly, while the NSFR should be calculated and reported at least quarterly.

¹The amount that all common shareholders have invested in a company. Most importantly, this includes the value of the common shares themselves.

²A distribution of a portion of a company's earnings, decided by the board of directors, to a class of its shareholders. The dividend is most often quoted in terms of the amount of money each share receives (dividends per share. It can also be quoted in terms of a percent of the current market price, referred to as dividend yield.)
1) Liquidity Coverage Ratio: The LCR is designed to ensure that a bank has sufficient high quality liquid assets (HQLA) in order to allow it to meet its cash commitments arising over a 30 days period of significantly severe stress. It therefore requires a bank to consider the expected cash outflows and cash inflows over a 30 days period of stress testing, recognising that it is likely to have increased commitments and less available resources as a result of the significantly severe stress, and then maintain a buffer of high quality liquid assets equal to or greater than its expected total net cash outflow. Banks should meet the LCR at all times [7].

Assets are considered to be high-quality liquid assets if they can be easily and immediately converted into cash at little or no loss of value. The liquidity of an asset depends on the underlying stress scenario, the volume to be monetised and the timeframe considered. Also the term total net cash outflows is defined as the total expected cash outflows minus total expected cash inflows in the specified stress scenario for the subsequent 30 calendar days [5].

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LCR = \frac{\text{Stock of high-quality liquid assets}}{\text{Total net cash outflows over the next 30 calendar days}} \geq 100\%
\]

2) Net Stable Funding Ratio: To promote more medium and long-term funding of the assets and activities of banking organisations, the Committee has developed the Net Stable Funding Ratio (NSFR). This metric establishes a minimum acceptable amount of stable funding\(^3\) based on the liquidity characteristics of an institution's assets and activities over a one year horizon. This ratio intends in acting as a minimum enforcement mechanism for complementing the LCR and reinforcing other supervisory efforts [5].

In particular, the NSFR measure is created for ensuring that medium and long-term assets are funded with at least a minimum amount of stable liabilities in relation to their liquidity risk profiles. The NSFR aims to limit over-reliance on short-term wholesale funding\(^4\) during times of limited liquidity and encourage for a better evaluation of liquidity risk across all on- and off-balance sheet items.

\(^3\)Stable funding is defined as those types and amounts of equity and liability financing expected to be reliable sources of funds over a one-year time horizon under conditions of extended stress.

\(^4\)A method of funding banks by short-term borrowing from other banks and financial institutions

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NSFR = \frac{\text{Available amount of stable funding}}{\text{Required amount of stable funding}} \geq 100\%
\]

Effectively, the NSFR will require Banks to increase longer-term funding, especially for illiquid assets and generally for assets which during the economic crisis proved be a significant liquidity drain. It does this by requiring a bank to value a certain proportion of each asset as illiquid and against which "stable" (or "sticky") funding must be held [7].

III. Concerns and discussions about Basel III's impact on the banking system

There are different opinions on how the new regulations will affect the world economy. Banks will have a harder time to make profits and many banks will have a hard time to follow the new regulations. We believe, as stated earlier, that the Diamond and Dybvig model provides with some very important insights on the mechanics of bank-runs and how to prevent them. Diamond and Dybvig emphasizes the importance of a lender of last resort to restore credibility. If we believe in this, and without giving any particular thought to the more extreme ideas like the one that proposes a total ban on the fractional reserve system of banks; then the question is not anymore "whether to regulate" but instead "how to regulate".

A very natural critique of the Basel III is that the timing for it is wrong; when the world economy is in the middle of maybe the biggest recession since the Great Depression, imposing stricter regulations will most probably slow down the recovery from the crisis. However, we agree on the fact that the Basel III was much needed because of the deficiencies of the Basel II, and whether or not it will be enough, or too tough, is very hard to foretell.

One thing that is very important to remind oneself when thinking about the Basel III is that the new rules target very broad issues that can lead to a too large risk exposure and also that there has been a certain level of creativity from the creators of the new standard. For the moment there exists very much fresh evidence from the recent crisis that makes it easier for regulators to target the right problems and risks. The Basel III however target banks only, and while banks get more heavily regulated opportunities open up for other actors that the Basel III does not regulate. There is a risk that non-bank financial intermediaries get a bigger market share
from services and a collapse by any of those unregulated institutions could affect the economy just as badly as a collapse of traditional banks.

The new capital requirements are one of the most important things in the Basel III and the big difference in leverage compared to the Basel II will be significant but we can also see one problem with a risk-weighted assets based leverage ratio and the problem is that while it pushes banks to lend more to governments and big institutions it also makes it harder for the small actors to borrow. We can understand the common opinion that these small actors, maybe some small business entrepreneurship or else, should be benefited instead of punished. On the other hand the regulations are made to prevent bank-crises and that should also be its purpose but it is still a negative effect that is worth to take into consideration.

Also the risk based capital ratios that Basel III heavily relies on, is actually a mechanism carried from Basel II and which spectacularly failed to prevent the global financial crisis. The crisis occurred even though most banks' capital ratios appeared to be strong. For example Lehman Brothers had reported very strong capital ratios days before it collapsed [13].

The biggest problem with these kind of ratios is that banks always find ways to make them appear better than they actually are and that regulators can not always prevent that from happening. So we are of the opinion that ratios which are based only on objective data, and not in estimates of risk and in banking activities that can be hidden, can significantly reduce the risk of a future failure of the banking system. Maybe it would be better if the risk based ratios were discarded completely, because if they can be "cooked" or falsely calculated by big institutions, then they are of no help at all. We are unsure if the non-risk based leverage ratio will be able to cover for the flaws in the risk-based one.

Furthermore the models that are being widely used for calculating risk, like the value at risk model, have been proved to be flawed on many situations and they have taken a lot of criticism [12]. This means that apart from the very optimistic calculations of the risk, if we also calculate it wrongly in a lot of situations by using not-so-correct models, then the probability of having a very good capital ratio while this is not the case, is relatively high. So concluding, we think that unless we obtain really good and heavily tested models for measuring the risk, then no regulatory system should be based mainly on ratios calculated with the not-so-correct models. However, if these ratios have to be used, then they should not be used as main ones but more like advisory ones.

On the other hand, Basel III is a large step towards a better global risk-management in banks and apart from its capital and liquidity requirements it also encourages transparency and imposes other control measures, while many of the flaws from Basel II have been corrected. So even though some of its aspects does not seem to be perfect, we think that Basel III will in general make the banking system better and safer than it was before, and in consequence, also the world economy.

IV. Reading list

We believe that the following list is a very good start for those that want to dig further into the Basel III accord. The list is sorted from the least difficult to the most difficult readings (the actual papers).

- A summary of Basel III: http://www.linklaters.com/Publications/AsiaNews/AsiaBankingandProjects/Pages/BaseIIIshortguide.aspx
- Accenture's Basel III handbook: reference [10].

References


