



CONTRADITÓRIO
think tank

Luís Faria | Financial regulation – part I:
Is Basel III just a window dressing?

Policy Paper 11/18 | December 2011



Financial regulation – part I* : Is Basel III just a window dressing?

Luís Faria

Policy Paper 11/18
December 2011

Contraditório
www.contraditorio.pt

e-mail: info@contraditorio.pt

The analyses, opinions and findings expressed here are those of the author(s) and not necessarily those of Contraditório.

Contraditório is a non-profit, independent and non-partisan think tank whose mission is to set out a better way to deliver best practices and innovative solutions. We combine the scientific approach of our policy papers with the virtues of freedom and knowledge and the engagement in civic intervention.

Contraditório's Policy Papers are circulated to encourage discussion and to establish a distinctive mind mapping in the scrutiny of ideas and policies.

Citation: Luís Faria, Financial regulation – part I: Is Basel III just a window dressing?, Policy Paper 11/18, December 2011, Contraditório, www.contraditorio.pt

Copyright: This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by-nc-nd/2.5/pt/deed.en>)

* Part II on financial regulation will be published in January 2012 under the title: An investigation of the consequences of Basel III using an agent-based model.



ABSTRACT

The financial crisis highlighted weaknesses in the risk management of trading book positions, modeling and regulation. This paper presents a brief overview of Basel Committee recommendations and critically discusses the regulatory authorities response.

Keywords: Financial regulation; Basel III; market risk; risk-weighted assets

Author: Luís Faria

e-mail: lgf@contraditorio.pt



Brief overview of the Basel Committee

The Basel Committee does not possess any

“Formal supranational supervisory authority, and its conclusions do not, and were never intended to, have legal force. (...) In this way, the Committee encourages convergence towards common approaches and common standards without attempting detailed harmonisation of member countries’ supervisory techniques”.¹

The Basel Committee works on recommendations that the European Union legislates as regulations and works with other countries on an international agreement.

In 1988, the Basel Committee decided to introduce a capital measurement system - the Basel Capital Accord² - that progressively introduced a credit risk measurement framework with a minimum capital standard. In 2004, the Committee issued a revised framework consisting in three pillars: refinements of 1988’s minimum capital requirements; supervisory review of an institution’s internal assessment process and capital adequacy; and, effective use of disclosure to strengthen market discipline as a complement to supervisory efforts.

Over the last few years, the Basel Committee has announced adjustments to the Basel II market risk framework and a substantial strengthening of existing capital requirements. This revision aims at promoting sound supervisory standards worldwide.

¹ Basel Committee on Banking Supervision (2009), History of the Basel Committee and its Membership, August 2009, Bank for International Settlements

² Basel Committee on Banking Supervision (1998)



Basel I (1988)

Basel I represented a very crude agreement that only dealt with credit risk reflected in the banking book. The aims were:

- To require banks to maintain enough capital to absorb losses without causing systemic problems;
- To level the playing field internationally in order to avoid competitiveness conflicts.

This document defined a minimum ratio of 4% for Tier 1 capital to risk-weighted assets (RWA) and 8% for Tier 1 and Tier 2 capital.

However, Basel I rules were not very risk sensitive and didn't address some aspects like portfolio effects and netting; capital adequacy of trading book securities; and market risk. Then, in 1996, it was given the opportunity for banks to develop their own market risk models based on VaR analysis. This was subject to minimum requirements such as strong and independent market risk management infrastructure; sound risk management policies and practices; effective capture of relevant risks; capture of equity and interest rate specific risk. In 1999, the Basel Committee issued a first proposal to replace Basel I with a more risk sensitive agreement covering market, credit and operational risks.

Basel II (2004)

Basel II was more flexible than Basel I and aimed at dealing with its weaknesses, namely the regulatory arbitrage, and has offered a range of risk sensitive approaches and incentives for better risk management, using more sophisticated approaches for calculating credit risk requirements.

As it was mentioned above, after the 1996 revision of Basel I banks gained the



“Ability to control the amount of capital they required by shifting between on-balance sheet assets with different weights, and by securitising assets and shifting them off balance sheet. Banks quickly accumulated capital well in excess of the regulatory minimum and capital requirements, which, in effect, had no constraining impact on bank risk taking.”³

Basel II was released in 2004 and it was due for implementation in the end of 2007, a few months after the financial crisis has erupted in August 2007. Thus we can conclude that Basel II never came properly into effect.

Basel II was structured around 3 pillars:

Pillar 1: Minimum capital requirements

The first pillar presents the total minimum capital requirements to cover exposure to market, credit and operational risks and defines minimum capital to buffer unexpected losses.

Market Risk

Market risk can be defined as the risk of movements in market prices of banks on or off-balance sheet positions. Since 1998 banks in G10 countries were also required to maintain regulatory capital to cover market risk based on 2 methods:

- The standardized approach. This approach requires more capital to RWA and adopts a “building block” approach to interest-rate and equity related instruments. It also differentiates capital requirements for specific or residual risk (refers to movements in market prices which are specific to an instrument and independent of general market

³ Blundell-Wignall, Adrian and Atkinson, Paul (2010)



movements in prices) from those for general market risk (refers to movements in market prices resulting from general market behaviour);

- The internal model approach. This requires less capital and is based on VaR. This approach enables a bank to use its own method, which must meet the qualitative and quantitative criteria set by the Committee and it is subject to the explicit approval of the bank's regulator. In this case the difference between the general and the specific market risk approaches consists only in changing few parameters.

Most sophisticated banks use a combination of the two methods depending on the extent of VaR model approval given by the regulator.

Revisions to Basel II market risk framework⁴, usually known as Basel II.5, were intended to enhance the Basel II framework and strengthen the rules governing trading book capital and then reduce regulatory arbitrage:

- Banks were required to calculate an additional stressed VaR intended to reduce the pro-cyclicality of the minimum capital requirements for market risk;
- Introduction of the application of an Incremental Risk Capital Charge (IRC) intended to supplement VaR;
- Securitized products will not be eligible for VaR and will be under banking book treatment;
- Comprehensive Risk Measures (CRM) are implemented and regulators may allow comprehensive risk capital charge to be used based on minimum qualitative criteria and stress tests.

⁴ Basel Committee on Banking Supervision (2011b)



Credit Risk

Credit Risk measures of Basel I were improved and two broad methodologies for calculating their capital requirements for credit risk were introduced:

- A standard approach that is supported by rating agencies external credit assessments; and
- Internal Ratings Based (IRB) approach that requires internal model and validation teams inside the financial institutions, but also needs to be approved by bank's regulator.

Operational Risk

Under Basel II, three completely new approaches were introduced for calculating capital requirement for operational risk:

- The Basic Indicator Approach that sets a charge for operational risk as a fixed percentage of gross income and serves as a proxy for bank's risk exposure;
- The Standardized Approach. Here the operations are separated into eight standard business lines and the capital charge for each business line is calculated by multiplying gross income for that business by a factor assigned to that business line; and
- The Advanced Measurement Approach where the capital charge is the risk measure generated by the bank's internal risk measurement system.



Total Risk Weighted Assets (RWA)

“Total RWA are determined by multiplying the capital requirements for market risk [MR] and operational risk [OR] by 12.5 (i.e. the reciprocal of the minimum capital ratio of 8%) and adding the resulting figures to the sum of RWA for credit risk.”⁵

According to Blundell-Wignall and Atkinson (2010):

$$RWA = \{12.5(OR + MR) + 1.06 \times \sum [w(i)A(i)]\}$$

where: $w(i)$ is the risk weight for asset i ; and $A(i)$ is asset i ; and credit risk is the sum of the various asset classes, each weighted by its appropriate risk weight. A scaling factor applied to this latter term, estimated to be 1.06 on the basis of QIS-3 data.

Table 1

Risk Weights Under Basel I and Basel II (Pillar I), %						
SECURITY	BASEL I	BASEL II Simplified Standardised	BASEL II Standardised based on External Ratings	BASEL II Advanced: Internal Ratings Based (IRB)		BASEL II Advanced IRB
				2004-05 QIS 4 Avg % chg in portf. MRC	2004-05 QIS 4 Median % Chg in portf. MRC	
Most Government/Central bank	0	0	0	0	0	Comes close to letting banks set their own Pillar 1 capital, with supervisory oversight. Risk weights depend on internal estimates of a loan's probability of default, loss-given-default, exposure to loss. These are based on the banks' own complex risk models, relying on subjective inputs and often on unobservable (e.g. OTC illiquid securities) prices. Pillar 2 provides for supervisory oversight. With stress testing, and guidance from supervisors, banks can be made to hold capital for risks not adequately captured under Pillar 1. Pillar 3 is disclosure and market discipline which relies on some notion of market efficiency. Rational markets punish poor risk managers.
AAA to AA-			0			
A+ to A-			20			
BBB+ to BBB-			50			
BB+ to B- (if unrated)			100			
Below B-			150			
Other public (supervisors discretion)	0-50	0		0	0	
Claims on MBBs	20	0		-21.3	-20.7	
Most OECD Banks & Securities firms	20	20	<90days	-21.9	-29.7	
AAA to AA-			20			
A+ to A-			20			
BBB+ to BBB- (if unrated)			20			
BB+ to B-			50			
Below B-			150			
Residential Mortgages-fully secured	50	35	35	-61.4	-72.7	
Retail Lending (consumer)	100	75	75	(-6.5 to -74.3)	(-35.2 to -78.8)	
Corporate & Commercial RE	100	100		(-21.9 to -41.4)	(-29.7 to -52.5)	
AAA to AA-			20			
A+ to A-			50			
BBB+ to BBB- (if unrated)			100			
Below BBB-			150			

Source: Blundell-Wignall and Atkinson (2010)

⁵ Basel Committee on Banking Supervision (2004)



The simplified version of Basel II roughly kept the same features of Basel I. In 2011, in the aftermath of the subprime crisis, it is remarkable to notice the evolution of risk weight to mortgages from Basel I to Basel II: from 50% to 35% and further cuts in the IRB version!

The RWA has become more risk sensitive in Basel II, Basel II.5 and Basel III. Capital requirements have not changed until Basel III, when they are substantially increased.

Pillar 2: Supervisory review process

This pillar discusses the key principles of supervisory review, risk management guidance and supervisory transparency and accountability to ensure that a bank maintains sufficient levels of capital to cover overall risk.

Pillar 3: Market discipline

Sets out minimum levels of public disclosure requirements on the scope of the application, capital, risk exposures, risk assessment processes, and hence the capital adequacy of the institution.

Criticism before the regulatory response

Basel formulations' weaknesses have been pointed out after the financial crisis. Some of the problems are briefly identified:

- The risk weighting analysis does not assume portfolio concentration nor requires appropriate diversification of the portfolio. This means that the minimum capital requirements may go hand in hand with one specific asset, regardless of the size of the exposure.



- Expanding business into low risk weighted activities. As Basel risk-weighting approach encourages portfolio concentrations in risk low-weighted assets (e.g. government bonds, mortgages and lending between banks, cf. Table 1, p. 9) this creates an incentive for institutions to cut on the numerator (capital) by expanding their business into low risk weighted activities.
- According to Blundell-Wignall and Atkinson (2010), “the lack of regulatory and supervisory integration [...] allowed promises in the financial system to be transformed with derivatives and passed out to the less regulated and capitalised industries outside of banking” (e.g. insurance and re-insurance).
- CDS made it possible to go short in credit. With CDS contracts banks were allowed to transform risky assets in derivatives with the lowest capital charges.
- A single global risk factor assumption was adopted. Gordy (2002) mentioned that

“The single risk factor assumption, in effect, imposes a single monolithic business cycle on all obligors. A revised Basel Accord must apply to the largest international banks, so the single risk factor should in principle represent the global business cycle. By assumption, all other credit risk is strictly idiosyncratic to the obligor. In reality, the global business cycle is a composite of a multiplicity of cycles tied to geography and to prices of production inputs. A single factor model cannot capture any clustering of firm defaults due to common sensitivity to these smaller-scale components of the global business cycle.”

- In the pre-crisis, too-big-to-fail institutions involved themselves in capital market activities for which they did not carry sufficient capital, which after



the crisis revealed as an incapacity to remove insolvent firms from the system. Innovations, securitisation, re-securitisation, regulatory and tax arbitrage, contagion, no effective constraints on leverage and counterparty risk were major problems leading towards the financial crisis.

- The Basel system tended to underestimate risks in good times and overestimate them in bad times. This led to a situation of pro-cyclical leverage ratios and counterparty credit policies; sporadic and not over the cycle risk measurements; and compensation and profit policies short-term oriented. Regulatory arbitrage to control RWA and bank capital with pro-cyclical policies became frequent under Basel frameworks. RWA is dependent on estimates of the Probability of Default, Loss Given Default, and Exposure at Default⁶ and the IRB approach made banks responsible for these cycle dependent estimations.
- Most of the risks involved in financial markets are dependent on subjective evaluations and non-observable data then not appropriate to modelling (i.e., dark pool trade represents roughly 80% of total trading activity).
- Capital regulations in Basel approach considered Tier 1 and Tier 2 but not common equity. Thus this definition of capital was doomed to fail both by inconsistency, as it did not applied uniformly across jurisdictions opening a loophole to regulatory arbitrage, and lack of transparency by banks when providing data on capital. Insolvency and subsequent bail-outs showed that banks did not have enough capital for the risk they were taken.

Critique to Pillar 2

Pillar 2 relates to the supervisory review process and can capture risks not

⁶ For more information on RWA formulas cf. Basel Committee on Banking Supervision (2004), p. 59



detected in Pillar 1 through stress testing and guidance from supervisors. Thus, banks may create buffers to be used in bad times. However, this is extremely difficult for supervisors to control as it requires them to keep up with changes in market structure, practices and complexity.

Critique to Pillar 3

Pillar 3 relies on the idea that markets are efficient, but the historical data of markets' behaviour suggests the contrary, namely that markets do not have informational efficiency.

Criticism to the regulatory authorities response

Basel II.5

In 2009⁷ the Basel Committee adopted significant changes:

“Since the financial crisis began in mid-2007, an important source of losses and of the build up of leverage occurred in the trading book. A main contributing factor was that the current capital framework for market risk (...) does not capture some key risks. In response, the BCBS (...) supplements the current value-at-risk-based trading book framework with an incremental risk capital charge, which includes default risk as well as migration risk, for unsecuritised credit products. For securitised products, the capital charges of the banking book will apply with a limited exception for certain so-called correlation trading activities, where banks may be allowed by their supervisor to calculate a comprehensive risk capital charge subject to strict qualitative minimum requirements as well as stress testing requirements. These measures will reduce the incentive for regulatory arbitrage between the banking and trading books.

⁷ Basel Committee on Banking Supervision (2011b)



An additional response to the crisis is the introduction of a stressed value-at-risk requirement (...) taking into account a one-year observation period relating to significant losses, which must be calculated in addition to the value-at-risk based on the most recent one-year observation period. The additional stressed value-at-risk requirement will also help reduce the procyclicality of the minimum capital requirements for market risk.”

Basel III concluded that VaR analysis wasn't good enough for securitizations. Hence they are not eligible for VaR anymore and will have to be modelled by standardized rules, with banking book treatment and consequently higher risk weights. The objective is to reduce securitization and resecuritization and thus to reduce the regulatory capital arbitrage between the banking and trading books.

This approach aims at focusing on risk and on trading book. These changes are reflected in new model validation under Basel II.5 that uses a combination of approaches: standardized/internal; general/specific. Three new models should be implemented into European legislation as Capital Directive Requirements 3 until the end of 2011:

- Stressed VaR that is based on a year historical data and puts a buffer on top of VaR volatility. This should be at least weekly, with a 99.9% confidence interval and cannot be back tested;
- IDRC/IRC: Incremental and default risk charge; and
- CRM that implements very demanding additional risk measures for certain securitisation products. CRM imply the application of new correlations, new parameters and new modelling.

These two last models are new and very challenging. Some of these models (IRC, CRM) are Financial Services Authority (FSA) exclusively.

Basel III



The question we should then ask is how do Basel III proposals respond to these issues in the sense of helping to avoid another crisis like the one we are still recovering from?

Basel III can be interpreted as a recognition and to some extent as a critique of what had failed in previous frameworks. Basel III presents the “reforms to strengthen global capital and liquidity rules with the goal of promoting a more resilient banking sector”.⁸ Basically, it works on the definition of capital, namely Tier 1 that had instruments that were not exactly equity, “to improve the banking sector’s ability to absorb shocks arising from financial and economic stress, whatever the source, thus reducing the risk of spillover from the financial sector to the real economy.”⁹

Basel III establishes that a buffer should be created in good times to be used in bad times. The regulatory response consists in raising both the quality and quantity of the regulatory capital base and enhance the risk coverage of the capital framework by:

- Raising the quality, consistency and transparency of the capital base by tightening the criteria for Tier 1 and for Tier 2 capital while abolishing Tier 3 capital.
- Enhancing risk coverage (e.g. counterparty credit risk exposures arising from derivatives, repos and securities financing activities).
- Introducing a leverage ratio as a supplementary measure to the Basel II risk-based framework in order to help to avoid the build-up in excess leverage.

⁸ Basel Committee on Banking Supervision (2011a)

⁹ idem



- Reducing pro-cyclicality and promoting countercyclical buffers through the build-up of capital buffers in good times that can be drawn upon in periods of stress.
- Addressing systemic risk and interconnectedness and acknowledging the need for additional capital, liquidity or other supervisory measures to reduce the externalities created by systemically important institutions (SIFIs).
- Introducing a liquidity coverage ratio to ensure banks always have a 30-day liquidity cover for emergency situations and a net stable funding ratio to ensure stable funding over a one-year horizon.

A critical assessment

Basel III makes significant improvements but the proposals contained in it still have flaws and do not address some of the most important failures of previous regulatory frameworks, namely:

- The model framework.
- Arbitrage.
- Capital requirements.
- Liquidity standard.

The model framework

In Basel III the weighting system still holds the assumption of portfolio invariance and does little in Pillar 1 to penalise concentration in portfolios. Also the one-size-fits-all approach still weaknesses the modelling process. The inconsistency of the regulatory framework is not conveniently addressed in the



analytical framework, which leaves Basel III with the same problem as Basel II.

Arbitrage

The possibility to go short in credit allows banks to transform credits as capital market instruments to avoid capital charges. Despite the reforms in Basel III through the RWA approach, leverage expansion may continue. It would be important to avoid activities in the shadow banking system and similar promises should be treated in similar ways. Also critical would be to binding constraint on the incentives banks have to expand leverage through capital arbitrage.

Basel III could then have dealt with regulatory arbitrage and portfolio concentration more decisively.

Capital requirements

Recently, David Miles and Adair Turner, the latter FSA Chairman, underlined the need of increasing Basel III capital requirements. Miles suggested in a co-authored paper¹⁰ published by the Bank of England that capital requirements should be within the range of 15%-20%. Turner later agreed with the authors saying that

“They suggest that if global regulators were benevolent dictators designing regulations for a banking system in a greenfield market economy, they would be wise to choose capital ratios far above even Basel III levels, something more like the 15% to 20% of RWA which David Miles illustrates in his recent paper. And the empirical evidence is as compelling as the theoretical.”¹¹

According to these authors to the problem of the quality of capital we should also add the importance of having enough quality capital. By the contrary, some

¹⁰ Miles, Yang and Marcheggiano (2011)

¹¹ Turner, Adair (2011)



voices from the industry says that more capital is not the way to avoid the next crisis. They also defend that imposing greater capital requirements on banks would have a negative impact on growth. And they don't refer to the range proposed by Miles and Turner but the actual proposal in Basel III.

However, most of the capital requirements are in relation to RWA. Defining perceived risk ex ante is no solution. A bank lends to a small business and it needs 8% in capital. The same bank lends to the government of a sovereign rated AAA to AA (i.e. France) and the bank needs no capital for the risk-weighted assets since the weight is 0%. Perceived risk drives us towards stampede and eventually disaster.

Leverage

There are some clashes between the definition of capital under the risk weighting approach and the leverage ratio. As it was mentioned before and according to Blundell-Wignall and Atkinson (2010) formulation, capital as defined by the risk weighting approach might give rise to a capital level as in:

$$\text{Min.CAP(RWA)} = 0.08 \times \{12.5(\text{OR} + \text{MR}) + \sum [w(i)A(i)]\}$$

However, capital according to a leverage ratio (LR) is defined as:

$$\text{Min.CAP(LR)} = \beta \sum [A(i)]$$

Whatever the level that is set for β , it is the leverage ratio that is likely to be the binding constraint.

$$\text{Min.CAP(RWA)} \leq \text{Min.CAP(LR)}$$



The explanation given by the authors is that the banks' ability to arbitrage the capital weights to reduce capital and expand leverage is very extensive.

If the leverage ratio is set too high (capital required too low), banks will have an incentive to arbitrage the weights to ensure they do not hold any more capital than needed.

Liquidity

The crisis began as a solvency crisis with a resulting liquidity problem. The liquidity coverage ratios in Basel III have a bias towards government bonds that in some cases are highly risky (as we now confirm in the eurozone scenario) and potentially subject to default risk but that are not perceived in advance. The need of having more liquid assets may lower returns and in that way increase propensity to risk taking in other areas.

Concluding Remarks

Basel III still has some flaws that prevent it to avoid future financial crisis. It seems that a world post-Basel III will not look particularly different from the one where the last crisis erupted from. It is generally accepted that more high-quality capital equals safer banks. However, capital ratios have a denominator as well as a numerator and it is crucial to question banks' assets' quality. Banks still have the ability to transform risky assets in derivatives, namely CDS, and thus reduce capital costs based on RWA. For example, banks can still shift risky assets into the insurance sector in a least regulated jurisdiction.

Some questions remain unanswered by Basel III particularly to know if the regulatory risk weightings reflect the asset quality; if, for example, CDS affect comparability; and if a different capital ratio with the same RWA won't create the same arbitrage problems and an incentive to boost capital ratios.



Bibliography

Angelini, P., Clerc, L., Cúrdia, V., Gambacorta, L., Gerali, A., Locarno, A., Motto, R., Roeger, W., Van den Heuvel, S. and Vlček, J. (2011), *BASEL III: Long-term impact on economic performance and fluctuations*, BIS Working Papers, No 338, Monetary and Economic Department, February 2011, Bank for International Settlements

Basel Committee on Banking Supervision (1998), *International Convergence of Capital Measurement and Capital Standards*, July 1988, Updated to April 1998, Bank for International Settlements

Basel Committee on Banking Supervision (2004), *International Convergence of Capital Measurement and Capital Standards - A revised framework*, Updated November 2005, Bank for International Settlements

Basel Committee on Banking Supervision (2009), *History of the Basel Committee and its Membership*, August 2009, Bank for International Settlements

Basel Committee on Banking Supervision (2011a), *Basel III: A global regulatory framework for more resilient banks and banking systems*, December 2011, Bank for International Settlements

Basel Committee on Banking Supervision (2011b), *Revisions to the Basel II market risk framework*, Updated as of 31 December 2010, February 2010, Bank for International Settlements

Blundell-Wignall, Adrian and Atkinson, Paul (2010), *Thinking beyond BASEL III: Necessary solutions for capital and liquidity*, OECD Journal: Financial Market Trends Volume 2010 – Issue 1

Gordy, Michael B., *A Risk-Factor Model Foundation for Ratings-Based Bank Capital Rules* (November 2002). Board of Governors of the Federal Reserve System Working Paper No. 2002-55.

Miles, D., Yang, J. & Marcheggiano, G. (2011), *Optimal bank capital*, Discussion Paper No. 31, January 2011, Bank of England

Turner, Adair (2011), *Leverage, Maturity Transformation And Financial Stability: Challenges Beyond Basel III*, Cass Business School, 16 March 2011