



Institute for International Political Economy Berlin

Financial services regulation in the wake of the crisis: The Capital Requirements Directive IV and the Capital Requirements Regulation

Author: Farina Casselmann

Working Paper, No. 18/2013

Editors:

Sigrid Betzelt ■ Trevor Evans ■ Eckhard Hein ■ Hansjörg Herr ■
Martin Kronauer ■ Birgit Mahnkopf ■ Achim Truger

Financial services regulation in the wake of the crisis: The Capital Requirements Directive IV and the Capital Requirements Regulation

Farina Casselmann *

Abstract

This paper analyzes the Capital Requirements Directive IV and the Capital Requirements Regulation, a new legislative package proposed by the European Commission in July 2011 which aims to strengthen the regulation of the banking sector and amend the European Union's rules on capital requirements for banks and investment firms. It is argued that the CRD IV package makes a great contribution towards creating a sounder and safer financial system, however, several aspects are insufficiently addressed and/or not comprehensive enough to produce the anticipated results. It is found that the main fallacies of the CRD IV proposal lay in increased risk-taking, procyclicality, deficient implementation, overreliance on credit rating agencies, and risk weightings. Moreover, the proposal does not touch upon the issues of the shadow banking system, diversification, the problem of 'too-big-to-fail' or the 'Volcker Rule'. It is, hence, concluded that the CRD IV proposal is not ambitious enough to address essential issues of systemic risk, regulatory arbitrage, or the fragility of the financial system.

Farina Casselmann

Katzbachstraße 23

10965 Berlin

Email: Farina.Casselmann@gmx.de

* Acknowledgements: The author is particularly grateful to Trevor Evans for helpful comments and suggestions and to Hansjörg Herr. Special thanks are also extended to Lana Casselmann, Constanze Krüger and Steffen Krauß for their support for an earlier version of this paper.

List of Abbreviations

Basel I	Basel Capital Accord
Basel II	New Capital Framework
Basel III	New Global Regulatory Standards on Bank Capital Adequacy and Liquidity
BCBS	Basel Committee on Banking Supervision
CAR	Capital Adequacy Ratio
CDO	Collateralized Debt Obligation
CET 1	Common Equity Tier 1
CRA	Credit Rating Agency
CRD	Credit Requirements Directive
CRR	Credit Requirements Regulation
EC	European Commission
ECAI	External Credit Assessment Institution
ECB	European Central Bank
ESRB	European Systemic Risk Board
EU	European Union
FSB	Financial Stability Board
FSF	Financial Stability Forum
G-20	Group of Twenty
GDP	Gross Domestic Product
ICB	Independent Commission on Banking
IIF	Institute of International Finance
IMF	International Monetary Fund
IRB	Internal Ratings Based [Approach]
LCR	Liquidity Coverage Ratio
MAG	Macroeconomic Assessment Group
NSFR	Net Stable Funding Ratio
ROE	Return on Equity
RWA	Risk-Weighted Asset
SIFI	Systemically Important Financial Institution
SMEs	Small- and Medium-Sized Enterprises
US	United States

1. Introduction

The European Union (EU) is still in the midst of a recession which was triggered by the global financial crisis that started in 2007 and gained full force in 2008. Although unorthodox fiscal and monetary policies were initiated to prevent more devastating consequences, the social and economic effects of the crisis are nonetheless detrimental. The high cost of the current financial crisis has shattered the confidence in the banking system and demonstrated that the inadequate governance of financial services can have wide-ranging consequences. It has challenged the prevailing neo-liberal orthodoxy towards economic policy of the past decades and exposed substantial deficiencies of the legislation in force. The apparent incapacity of financial markets toward self-regulation and optimal channeling of resources has called for a thorough reform of the financial sector. In this context, the European Commission (EC) has already proposed several amendments to the framework of financial regulation and supervision, including two revisions of the existing banking regulation, with the Credit Requirements Directives (CRDs) in October 2008 (CRD II)² and July 2009 (CRD III)³. Nonetheless, to make the banking system more resilient and stable, further coordinated action is required to prevent the recurrence of recent problems.

Therefore, the EC adopted a new legislative package on 20 July 2011 to strengthen the regulation of the banking sector, amending the European Union's rules on capital requirements for banks and investment firms. The *CRD IV package* (henceforth *CRD IV*) sets out to amend and replace the existing capital requirement directives by two new legislative instruments, the Capital Requirements Directive IV (CRD IV)⁴ and the Capital Requirements Regulation (CRR)⁵. It will transpose into EU law the Basel III Accord, an international agreement put forward by the Basel Committee on Banking Supervision (BCBS) and

² The adopted CRD II package consists of Directive 2009/111/EC of the European Parliament and of the Council of 16 September 2009 amending Directives 2006/48/EC, 2006/49/EC and 2007/64/EC as regards banks affiliated to central institutions, certain own funds items, large exposures, supervisory arrangements, and crisis management and Commission Directives 2009/27/EC of 7 April 2009 and 2009/83/EC of 27 July 2009, amending certain Annexes to Directive 2006/49/EC and Directive 2006/48/EC, respectively, as regards technical provisions concerning risk management.

³ Directive 2010/76/EU of the European Parliament and of the Council of 24 November 2010 amending Directives 2006/48/EC and 2006/49/EC as regards capital requirements for the trading book and for re-securitizations, and the supervisory review of remuneration policies.

⁴ Proposal for a Directive of the European Parliament and of the Council on the access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms and amending Directive 2002/87/EC on the supplementary supervision of credit institutions, insurance undertakings and investment firms in a financial conglomerate.

⁵ Proposal for a Regulation of the European Parliament and of the Council on prudential requirements for credit institutions and investment firms.

concluded by the Group of Twenty (G-20) on 11-12 November 2010 in Seoul (G-20 2010: 7). The Basel III agreement is the third revision of the Basel Capital Accord and a comprehensive set of reforms which proposes to strengthen the regulation, supervision, and risk management of the banking sector.

The first common Basel Capital Accord (Basel I) was issued in 1988 in response to the perceived failings of deregulation. As banks trying to compete for larger market shares substantially increased their exposures without an adequate enhancement of their capital bases, the Committee became concerned that the capital ratios of the main international banks were deteriorating (BCBS 2009: 2). The objective of the Basel I Accord was to ensure that internationally active banks maintain a sufficient level of capital to compensate for potential losses. Thereto, the BCBS established a basic definition of what was considered regulatory capital and required banks to operate with a minimum ratio of capital to risk-weighted assets (RWAs) of 8 percent (King/Tarbert 2011: 2; Larson 2011). Since before deregulation allowed banks to exploit differences in national capital regulation, the Basel I framework was intended to promote a level competitive playing field across countries (Blundell-Wignall/Atkinson 2010b: 4). However, Basel I had several flaws. Among the major problems were that it grouped assets into a few categories, each being assigned a certain risk-weighting, and that the required equity holding was set to 8 percent of the RWAs, irrespective of the economic situation. These ‘fairly arbitrary’ (European Parliament 2011: 83) weightings encouraged regulatory arbitrage and the misallocation of resources.

In acknowledgement of its weaknesses, the Basel Committee issued a proposal for a new capital adequacy framework in June 1999, which had been refined in the following years until the New Capital Framework (Basel II) was released in June 2004. Basel II represents a comprehensive revision of the first Basel Accord and consists of three pillars which aim to constitute an effective capital framework. These are minimum capital requirements, the supervisory review process and disclosure requirements to strengthen market discipline (BCBS 2009: 3). Because banks had a strong incentive to shift their portfolios towards the riskiest assets within a given risk-weight category under Basel I, Basel II made bank capital requirements more sensitive to changes in the banks’ risk exposure and based requirements on asset *quality* rather than only on asset *type* (Agénor/Pereira da Silva 2012: 43). This means that while the risk weighting was exogenous under Basel I, compulsory capital charges under Basel II were based on self-assessed risk weights of big banks and inversely mirrored the quality of a bank’s portfolio. As a consequence, requirements varied over time and across

banks, in correlation with changes in the riskiness or probability of default of the underlying assets (Resti 2002: 19f.). But although this increased the adequacy of capital charges by introducing a market risk element to the calculation of RWAs, Basel II allowed banks to hold less minimum capital reserves than under Basel I (Blundell-Wignall/Atkinson 2010b: 4).

The current financial crisis painfully demonstrated that the existing Basel II framework was unable to limit the enormous credit expansion, prevent massive speculation, impede the contagion effects of failures, or mitigate extensive deleveraging during the crisis. In 2007-08, many banks experienced financial distress although they had officially met the requirements set by Basel II. The rather imprecise definition of high-quality capital and the erosion in capital levels over the two decades before the outbreak of the crisis (King/Tarbert 2011: 3) unambiguously demonstrated deficiencies of the existing capital structure and highlighted the need to increase the quality and quantity of capital. In response to this, the BCBS issued the detailed rules for new global regulatory standards on bank capital adequacy and liquidity (Basel III) in December 2010. The Basel III Accord enhances microprudential regulation by strengthening bank capital requirements, but also introduces macroprudential measures to address system-wide risk. The major innovations of the new Basel III Accord are the introduction of a counter-cyclical capital buffer and new regulatory requirements for liquidity and leverage.⁶ Basel III, however, is a non-binding agreement which is subject to transposition into respective national law. In the EU, the Basel III standards are aimed to be implemented with the adoption of the *CRD IV* proposal, which seeks to ‘put in place a comprehensive and risk-sensitive framework and to foster enhanced risk management amongst financial institutions’ (EC 2012b).

This paper argues that the proposed *CRD IV* Directive and Regulation address the issue of internalization of costs and make a great contribution towards creating a sounder and safer financial system. However, several weaknesses which have been disclosed by the financial crisis remain insufficiently addressed or completely disregarded. Consequently, the *CRD IV* proposal may, especially in the short term, have unintended and negative effects on macroeconomic developments and may lead to more extensive risk-taking practices by financial institutions due to the increased reliance on the financial markets. A further crucial weakness of the proposal is that it falls short of a binding implementation of central

⁶ An in-depth analysis of the Basel III Accord would exceed the scope of this paper; however, further details will indirectly be introduced in the following part on the *CRD IV* proposal, which transposes the Basel III rules into EU law.

innovative instruments, the leverage ratio and long-term liquidity requirements. Moreover, the overreliance on external rating agencies has not been modified, and certain forms of exposure continue to receive preferential treatment. Other issues that played a decisive role in the evolution of the current financial crisis are met with no response. This includes the problem of regulatory arbitrage and a more direct regulation of credit allocation towards greater diversification. Furthermore, the EC's proposal does not contain a measure to address the 'too big to fail'-dilemma or to separate commercial banking from proprietary trading. Thus, although the *CRD IV* proposal is an important step into the right direction, a more stringent commitment is required to address systemic risk and improve the macroprudential orientation of financial regulation.

The remainder of this paper is structured as follows: Section 2 will present the *CRD IV* package and identify its core elements, before sections 3 and 4 will provide a critical assessment of the legislative proposal and detect its fallacies and deficiencies. The final section will conclude the main findings.

2. The Credit Requirements Directive IV and Regulation

In July 2011, the EC adopted two new legislative proposals to enhance the regulation of the banking sector, the Capital Requirements Directive IV (CRD IV) and the Capital Requirements Regulation (CRR). Together they form the so-called *CRD IV package*, which is set out to amend and replace the existing CRDs in order to make the EU's banking sector more resilient to financial shocks. It contains elements of the Basel III Accord and harmonizes other provisions of the existing legislation. While the Directive governs the access to deposit-taking activities, the accompanying Regulation establishes the required prudential standards and ensures that the same prudential rules will directly apply to all member states. The following section will provide an outline of the core elements of the *CRD IV* proposal, which is designed to address regulatory shortcomings in the fields of liquidity risk management, the definition of capital, the intensity of leverage, counterparty credit risk, and the high level of regulatory divergence among member states.

2.1. Quality of Capital

Many of the banks that experienced substantial financial difficulties during the crisis had been in compliance with the current minimum capital requirements. Therefore, the major issue was

not a lack of capital but rather its insufficient quality (Blundell-Wignall/Atkinson 2010a: 24). It is thus a prime objective of the *CRD IV* to tighten the definition and increase the quality of capital which banks and investment firms will be required to hold.

CRD IV defines an institution's own funds as the sum of its Tier 1 capital and Tier 2 capital (CRR, Art. 69), where Tier 1 and Tier 2 are different categories of capital quality. Tier 1 capital is further subdivided into Common Equity Tier 1 (CET 1) and Additional Tier 1 capital (CRR, Art. 23). Under the new own funds requirements, financial institutions' capital must to a large extent be of core capital. This represents the highest-quality capital and consists essentially of equity stock and retained earnings.⁷ Additional Tier 1 instruments are second-best, equity-like instruments, basically consisting of various types of preferred stock and additional paid-in capital that otherwise do not satisfy the definition of CET 1 (King/Tarbert 2011: 4). Together with CET 1, Additional Tier 1 capital constitutes the going concern regulatory capital which should absorb losses while the institution remains solvent. These new requirements are scheduled to be implemented gradually between 2013 and 2015 (CRR, Art. 448). Tier 2 capital is the third category of eligible capital and consists of various fairly subordinated sorts of equity capital, which should absorb losses on a gone-concern basis (CRR, Arts. 60ff.).

The EC followed the BCBS proposal in abolishing Tier 3 capital, the former additional category of eligible capital, which was found to be of insufficient quality. Therefore, many instruments that have so far been included in the calculation of own funds will no longer qualify as regulatory capital under *CRD IV*. They will be gradually phased out until 2021, through a decrease of their eligibility by 10 percent each year (CRR, Art. 464). With the redefinition of regulatory capital, the *CRD IV* proposal introduces more restrictive criteria for the eligibility of capital instruments, with emphasis on superior quality. The new framework aims to ensure that banks hold sufficient levels of core capital to be able to absorb unexpected losses as they occur.

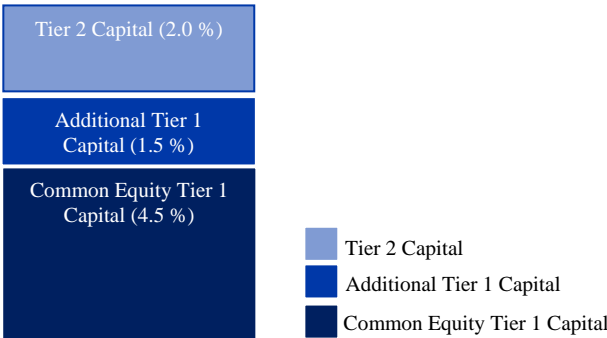
⁷ More precisely, CET 1 capital comprises equity that is issued directly by the institution, paid up, perpetual, clearly and separately disclosed on the balance sheet, not repayable, with the exception of liquidation, and with distributions that are non-preferential. CET 1 instruments must absorb the first and greatest share of losses, rank below all other claims in the event of insolvency or liquidation, and entitle owners to residual assets. Moreover, the instruments must be not secured or guaranteed by any arrangement to enhance the seniority of the claim (CRR, Art. 26(1)).

2.2. Minimum Capital Requirements

The financial crisis has also demonstrated that the capital base of several banks was insufficient to serve as a cushion against the incurred credit losses and write-downs. Therefore, *CRD IV* raises the required minimum reserve of own funds. Instead of the current 2 percent (EC 2006), it requires financial institutions to hold a total common equity ratio of 7 percent, including the capital conservation buffer. More precisely, financial institutions are required to hold own funds consisting of a CET 1 capital ratio of 4.5 percent, a Tier 1 capital ratio (i.e. CET 1 plus additional Tier 1 capital) of 6 percent, and a total capital ratio (i.e. Tier 1 plus Tier 2 capital) of 8 percent of RWAs at all times (CRR, Art. 87). Figure 1 summarizes the new minimum capital requirements.

These capital adequacy ratios (CARs) are understood as the quotient of the required capital and risk-weighted assets, while required capital is the difference between total capital and non-eligible capital. Thus, the total capital ratio of an institution is its own funds expressed as a percentage of the total risk exposure amount. The rationale for risk-sensitive CARs is to oblige institutions to hold appropriate minimum amounts of capital and to ensure that the underlying risk exposure is properly reflected in this capital requirement. Weighting assets according to the degree of risk they carry is considered to be indispensable in order to ensure adequate solvency of the institutions (CRR, Recital 23).

Figure 1: Minimum Capital Ratio of 8 Percent Risk-Weighted Assets



Source: European Commission (CRD IV-CRR); Author's illustration.

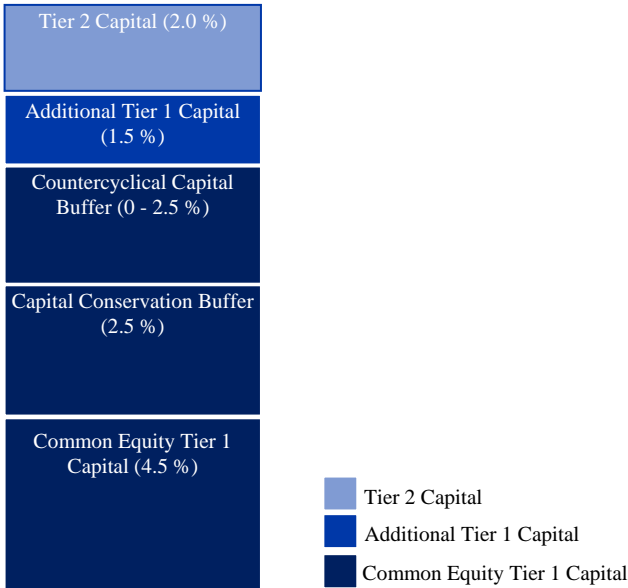
2.3. Capital Buffers

In addition to the own funds requirements mentioned above, the *CRD IV* also introduces a compulsory capital conservation buffer and a discretionary countercyclical capital buffer. The capital conservation buffer requires institutions to maintain additional capital equivalent to 2.5 percent of their RWAs (*CRD IV*, Art. 123). The buffer applies at all times and has to be met with capital of highest quality, CET 1.

The countercyclical capital buffer introduces a time-varying capital component, which is meant to achieve the macroprudential goal of mitigating the risk of procyclicality and excessive leverage. The rate of the buffer can be set at national discretion by the competent authorities. It must be between 0 and 2.5 percent of the total risk exposure amount and will be applied by adjusting the size of the capital conservation buffer by the respective percentage points (*CRD IV*, Art. 126(5)). It has to be built up during periods of economic growth to limit credit expansion and can be released during periods of financial and economic stress. The expected effect is that in a boom, when risk measures are favorable and usually would allow banks to engage in further leveraging or lending, banks have to accumulate an increasing proportion of capital which will limit the magnitude of the boom and alleviate the procyclicality effects during the downturn. Hence, the buffer is aimed at ensuring that financial institutions accumulate adequate capital reserves during good economic times that can be drawn upon in times of economic stress to absorb losses. As this buffer is intended to compensate the risk of excessive credit growth, the respective buffer rate is set relative to the development of credit growth, determined by the deviation of the ratio of credit to GDP from its long-term trend (*CRD IV*, Art. 126).

In total, the two capital buffers substantially increase overall own funds requirements that banks and investments firms have to hold under *CRD IV*, potentially requiring a total minimum capital level of 13 percent of RWAs (cf. Figure 2).

Figure 2: Capital Ratio including Capital Buffers (10.5 - 13 Percent)



Source: European Commission (CRD IV-CRR); Author’s illustration.

2.4. Liquidity Standards

The financial crisis exposed substantial mismatches in the maturity of assets and liabilities, primarily due to the extensive reliance on short-term instruments for funding. This led to severe problems of liquidity, excessive deleveraging, fire sales, and eventually the drying up of liquidity. The underlying systemic risk of an asset is therefore closely related to the maturity of its funding. Hence, *CRD IV* proposes to introduce two measures to improve the resilience of financial institutions and require them to hold a stock of liquid assets, which can be drawn upon in times of stress to cover liquidity needs.

To reinforce short-term liquidity, a liquidity coverage ratio (LCR) is proposed, which would require institutions to meet their net liquidity outflows⁸ during a period of 30 days with at least the same amount of liquid assets (CRR, Art. 401). The retained liquidity buffers are intended to compensate for potential maturity mismatches. Moreover, the Commission follows the proposal of the BCBS (2010b, 2010c) and considers proposing a net stable funding ratio (NSFR) which would require credit institutions and investment firms to

⁸ Net liquidity outflows are understood to be the value of the difference between liquidity outflows and liquidity inflows (CRR, Art. 401).

maintain a longer-term funding structure. Subject to an observation period until 2018, assets would have to be matched to a certain extent by sources of stable funding over the period of one year in an institution-specific stress scenario (CRR, Recital 76).

2.5. Leverage Ratio

Excessive leverage renders financial institutions highly sensitive to unforeseen shocks, because a small negative disruption in asset prices can deplete an institution's capital base and lead to insolvency, with adverse contagious effects on other institutions. In order to promote financial stability and prevent excess leveraging, the *CRD IV* introduces a tool which intends to limit the degree of leverage banks and investments firms can assume. The leverage ratio is defined as an institution's capital measure divided by the sum of all un-weighted assets and off-balance sheet items (CRR, Art. 416). The EC, however, does not introduce the leverage ratio as a binding instrument but only as an additional tool at the discretion of supervisory authorities. Institutions will be required to publish their leverage ratios as of January 2015 (CRR, Arts. 436(1), 487(2)) and by December 2016, the EC will present a report on the observational period, eventually accompanied by a legislative proposal to make the leverage ratio a binding requirement (CRR, Art. 482).

3. Fallacies of the CRD IV Proposal

The financial crisis has exposed significant shortcomings of current regulation and supervision of the financial system. A comprehensive and wide-ranging regulatory framework should have prevented financial institutions from excessive risk taking or leveraging, and avoided negative liquidity spirals, illiquidity, and insolvency. The new credit requirements proposal by the EC addresses several matters of public and academic concern and represents a vital improvement to the current regulatory and supervisory framework. However, it also contains noteworthy deficiencies and shortcomings, where the proposal is not far-reaching or stringent enough to make necessary amendments and fill the disclosed gaps of EU banking regulation. The following part therefore identifies major weaknesses of the proposal while section 4 will address shortcomings of the *CRD IV*. The main fallacies of the *CRD IV* proposal fall under the categories of increased risk-taking, procyclicality, deficient implementation, overreliance on credit rating agencies, and risk weightings.

3.1. Increased Risk-Taking

The increase in regulatory capital requirements with the implementation of the *CRD IV* will lead to a total own funds obligation of 10.5 percent, exclusive of additional countercyclical capital rates. This means a net increase in required capital charges of 2.5 percentage points (cf. EC 2006), irrespective of the capital quality. All other things equal, this means a drop in a financial institution's return on equity (ROE). Since the ROE expresses an institution's efficiency in generating profits, the decrease in ROE implies a decrease in profitability. This prospect may induce banks and investment firms to engage in higher-risk investments in order to maximize the yield per unit of capital and preserve a higher ROE, because it usually holds that the higher the risk, the higher the margin of potential returns. Thus, *CRD IV* may drive banks to run higher risks in order to regain profitability. It is implicit that the greater risk affinity also leaves banks more reliant on financial markets and, consequently, to a higher extent exposed to market swings.

This is an enormous fallacy of the tightened framework, which may substantially reduce the positive effects of higher capital standards on financial stability. The increased readiness to take on larger amounts of risk implies a greater reliance on financial markets and thus can put general financial stability at risk. This threat is especially severe if banks succeed in finding investment opportunities where the required own funds are imperfectly aligned with the underlying risk exposure. Another great, yet related concern is that the stricter capital rules will induce banks to shift a greater proportion of their business activities into less-regulated segments of the financial system, such as the shadow banking sector. This bears significant risks, since it allows institutions to evade capital requirements, as the recent financial crisis has amply demonstrated. The challenges arising from the shadow banking sector will be addressed in further detail in section 4.1.

It is argued, particularly by representatives of the banking industry, that the need to recapitalize and hold higher ratios of eligible capital can have a dampening effect on banks' lending capacities and thus reduce credit supply. This effect may be further aggravated if financial institutions will have the tendency to compensate the drop in ROE with riskier investments. Institutions may find it more lucrative to invest their funds in financial products where returns are more favorable at the costs of greater risks, instead of distributing traditional loans. Against this background, banks' long-term ability to finance the economy may also be negatively affected.

3.2. Procyclicality

Among the primary objectives of current banking regulatory endeavors is to strengthen financial stability and minimize the probability and magnitude of serious stress to the whole financial system. This implies strengthening the macroprudential orientation of the regulatory and supervisory structure, which essentially includes addressing procyclicality⁹. Although the *CRD IV* does address the issue of procyclicality with the inclusion of the countercyclical capital buffer, its effectiveness is questioned by many scholars and the calculation of minimum requirements, which has been found to intensify business cycle fluctuations, remains unchanged.

It is often argued that the banking business is inherently procyclical. Primarily due to the existence of market imperfections and asymmetric information, the financial system has a natural tendency to amplify business cycles (cf. Drumond 2009: 813; Resti 2002: 21; and others). This is either because banks are inclined to reduce their loan rate in economic downturns, based on a concern about credit quality and repayment prospect, or because information asymmetries and economic uncertainty render it extremely costly for banks to raise external equity after a shock to their capital base. Both of these options further stimulate downward pressures, while the effects are reversed during periods of economic expansion. The financial crisis has unambiguously demonstrated the disruptive effects of procyclicality and highlighted the inadequacy of a regulation that is irrespective of the business cycle.

Under *CRD IV*, institutions' required levels of own funds are determined by the ratio of the eligible capital to RWAs. This corresponds to the current calculation of compulsory capital charges under *CRD II* and *III*. The objective of risk-sensitive capital charges is to ensure that capital requirements reflect the underlying risk. However, they consequently also render capital requirements responsive to changes in the risk exposure, which varies with the business cycle. Risk-sensitive capital charges may, thus, have procyclical effects and act to intensify business cycle fluctuations. For instance in a period of economic upswing, asset prices rise while the underlying risk of an institution declines, as accordingly does the risk-weighted assets. With reduced RWAs in the denominator, capital ratios rise and encourage further lending, which in turn stimulates further economic growth. If, however, the economy deteriorates and asset prices decline while risk increases, RWAs rise and the capital ratio falls.

⁹ The Financial Stability Forum (2009) defines the term *procyclicality* as the tendency of the dynamic and mutually reinforcing interactions between the financial and the real sectors of the economy to amplify business cycle fluctuations and cause or exacerbate financial instability (FSF 2009: 8).

This may lead to solvency concerns, liquidity spirals, fire sales with potential spillover-effects on other institutions, and a contraction in lending. Thus, when financial institutions' capital base is eroded during a recession, risk-based capital requirements rise. It requires financial institutions to hold a larger amount of capital at times of economic distress when profits decrease and capital markets are uneasy, which further impairs their economic activity and restricts lending.

This has already been a matter of discussion among scholars and public officials for several years. In early 2009, the De Larosière Report emphasized the strong procyclical impact of the existing capital framework (de Larosière, et al. 2009: Par. 59) and also the Financial Stability Forum (FSF) reported that higher risk sensitivity implies procyclically moving capital requirements (FSF 2009: 12). Many academic works have also cautioned against potential business cycle amplifying effects of risk-weighted capital charges (Agénor/Pereira da Silva 2012; Aliaga-Díaz/Olivero 2009; Blundell-Wignall/Atkinson 2010a, 2010b; Drumond 2009; Hache 2012; Kashyap/Stein 2004; Repullo/Saurina 2011; Repullo/Suarez 2008; Repullo/Suarez 2009; Resti 2002). Already in 2002, Resti stressed that risk-weighted assets increase during economic downturns as borrowers are downgraded. He reasons that this forces banks to reduce the credit supply to comply with the regulatory capital requirements and increase the costs of loans, which then exacerbates a recession. As a result of an empirical analysis, Kashyap and Stein (2004) identify the fixed risk curve of the Basel II framework as a problem. They state that due to loan losses and a significantly increased risk of non-defaulted loans, capital charges for financial institutions' portfolios will rise during a recession. They also note that this will further constrain banks' lending capacity. Repullo and Suarez (2009) apply a dynamic equilibrium model and find that while the probability of bank failure is substantially lower in a system of risk-sensitive capital standards than in the Basel I regime, the supply of bank credit is significantly more cyclical than under flat capital requirements. This means the capacity to amplify economic downturns is higher under the Basel II-III/*CRD IV* than under Basel I.

The procyclicality hypothesis is strongly supported by the empirical and theoretical literature.¹⁰ Notwithstanding this public discourse, neither the *CRD IV* nor the Basel III Accord undertake any amendments of the calculation of minimum requirements. The EC merely includes a review clause in the Regulation, which calls on the Commission to

¹⁰ For a review of the theoretical literature on the regulatory framework of capital requirements under the Basel Accords, see Drumond (2009).

periodically monitor the effects of risk-sensitive requirements on the economic cycle and report every two years to the European Parliament and to the Council (CRR, Art. 477).

The procyclicality of the financial system has been identified by the De Larosière Report (2009) and the FSF (2009) as a prime issue in need of reform. Both groups of experts suggest the introduction of a countercyclical buffer to strengthen the macroprudential orientation, reduce systemic risk, and dampen inherent procyclical effects of the financial system. The De Larosière Report strongly invites regulation to introduce countercyclical measures to mitigate inherent risk-taking and over-extension tendencies in times of economic expansion (de Larosière, et al. 2009: Par. 60). The FSF (2009) likewise emphasizes the need to reduce procyclicality in the financial system. It identifies the build-up of buffers during expansions and their controlled release during periods of economic and financial stress as key mechanism (FSF 2009: Recommendation 1.1). The FSF also calls on the BCBS to monitor procyclical effects and make appropriate adjustments to dampen excessive cyclicality of the minimum requirements (FSF 2009: Recommendation 1.5). This request has been complied with through the inclusion of the countercyclical capital buffer in the Basel III framework and the *CRD IV* proposal.

The countercyclical capital buffer aims at reducing the inherent procyclicality of the financial system by raising own funds requirements during expansionary times in order to restrict excessive credit growth. While CARs are normally a function of a financial institution's own risk of default, countercyclical buffers rise in correlation with aggregate market risk and, therefore introduce a macroprudential component to the calculation of CARs. Many scholars have proposed and supported the introduction of a countercyclical measure to complement minimum capital requirements (cf. for example Brunnermeier, et al. 2009; Repullo/Suarez 2009; Kashyap/Stein 2004; Hanson, et al. 2011; Francis/Osborne 2012). Its effectiveness has been confirmed by an empirical data simulation (Drehmann/Gambacorta 2012). Nevertheless, certain major concerns remain.

The main reservation relates to the macroeconomic variable to which the buffer rate is linked. As stipulated in section 2, the *CRD IV* proposal lays out that the countercyclical capital buffer will be set by a designated authority in each member state, based on the deviation of the ratio of credit-to-GDP from its long-run trend (*CRD IV*, Art. 126). During the process of setting the countercyclical buffer rates, guidance may be provided by the European Systemic Risk Board (ESRB), especially with regard to the variables which serve as indicators for the build-up of systemic risk. But each designated authority is free to include

further variables it considers relevant in the assessment of the national countercyclical buffer rate (CRD IV, Art. 126(3)(c)). Thus, despite a common framework, the ultimate calculation of the countercyclical buffer rate may vary substantially across member states, given the selection of distinct variables in order to identify systemic risk. Although it can be argued that the EC might have included the guidance from the ESRB especially for this purpose, the determination of the countercyclical buffer rate based on a number of different variables could lead to an inconsistent application of the buffer within the EU and cause distortions. Thus, while it is important to take differences in the economic cycle among member states into account, the variables used to identify excessive credit growth and apply the countercyclical buffer should be further aligned in order to avoid inconsistent application of the buffer or a regulatory race to the bottom. Moreover, basing the capital buffer guide only on the credit-to-GDP gap may be inappropriate owing to the volatility of the variable, especially in smaller economies.

This is confirmed by the findings of Repullo and Saurina (2011), who demonstrate that there is a statistically significant correlation between the credit-to-GDP gap as common reference point and GDP growth for many countries. Hence, the authors show that the proposed measure may suggest a reduction of capital requirements in times of economic growth and increase requirements when growth is low. This result, as they suppose, may be due to a time component – the fact that credit usually lags the business cycle and that it takes time before the credit-to-GDP ratio passes a certain trend line. Overall, their work implies that the countercyclical capital buffer may work against its intention and wind up amplifying the procyclicality of risk-sensitive capital requirements. This is also in line with the conclusion of Agénor and Pereira da Silva (2012) who find that by lowering deposit rates, capital buffers have an expansionary effect. Other scholars (Drehmann/Gambacorta 2012) claim that the countercyclical buffer may even significantly reduce the supply of credit in the first place and therewith hamper economic growth.

Overall, addressing the procyclicality of risk-weighted capital charges is a highly important issue which has received widespread recognition. The countercyclical capital buffer constitutes the only instrument to address procyclicality. Moreover, it is the most significant macroprudential element of the *CRD IV*. But by limiting banks' lending capacity, the CARs of the *CRD IV* regime may have negative effects on economic growth and exacerbate economic downturns. The identification method to sense the accumulation of risk should therefore be subject to further research to prevent adverse consequences. Repullo and Saurina

(2011), for instance, propose the deviation of credit growth from its long-run average as an alternative common reference point to the credit-to-GDP gap. However, if the calibration of the countercyclical capital buffer will be further ameliorated, the critical question remains whether the buffers will suffice to counteract the inherent procyclicality of the financial system.

3.3. Deficient Implementation

It is one of the main aims of current policy endeavors to ensure that financial institutions are better equipped to absorb shocks to their capital base. To this effect, the *CRD IV* package introduces significant changes to both the quantity and quality of required capital, including two capital buffers. Tightening capital adequacy requirements, however, may negatively affect banks' credit supply and consequently economic growth. In order to keep the potential negative impact low, the EC designed an implementation timeline for the new capital standards which aims at minimizing any deleterious effect by means of grandfathering clauses and long phasing-in periods (cf. CRR, Arts. 448-476 and CRD IV, Art. 140-149). The length of the implementation period aims to control institutions' responses to the new standards. While banks may choose to respond to tighter requirements by rationing credit supply, a longer transition period could allow banks to reach the target capital ratio by retaining earnings, issuing new equity, or reducing fixed costs (EC 2011d: 49). The approach of a gradual phase-in of new requirements has generally been found reasonable by academic studies (cf. for example Kashyap, et al. 2010; Marzinotto/Rocholl 2010). Nonetheless, the implementation time span proposed by the EC is very prolonged. The CET 1 and Tier 1 minimum requirements will be phased in between 1 January 2013 and 1 January 2015 (CRR, Art. 448), whereas the capital buffers will not be fully effective before 1 January 2019. The capital conservation buffer and the countercyclical capital buffer will both start their phase-in on 1 January 2016 with a modest requirement for each of no more than 0.625 percent of the total of the risk-weighted exposures. The maximum buffer rate will be raised by the exact amount in the two following years until the capital conservation buffer will require 2.5 percent and the countercyclical capital buffer between 0 - 2.5 percent of additional own funds as of 1 January 2019 (CRD IV, Art. 149). It is, thus, not before January 2019 that banks will be required to hold the proclaimed minimum of 10.5 percent of high-quality capital. Moreover, the transition period for changes to the eligibility of capital in the form of grandfathering of items within CET 1, Additional Tier 1, and Tier 2 items runs until 31 December 2021 (CRR, Art. 464(5)). Instruments that will no longer comply with the stricter

capital definitions will lose eligibility by 10 percent each year and, thus, only become effectively de-recognized in ten years' time (as of 1 January 2022).

The *CRD IV* raises capital requirements markedly but the absence of an earlier implementation framework constitutes a major weakness, as the new capital regime will not become fully effective before January 2019. Although the concern of adverse economic effects is legitimate, especially in the short run,¹¹ a somewhat swifter time frame would have seemed more appropriate to prevent continued undercapitalization, especially in the light of the severe experience of the financial crisis.

Besides the long implementation timeline, the *CRD IV* proposal also stops short of a binding implementation of the liquidity requirements and the leverage ratio. They are both important elements of the banking sector reform agreed at G-20 level (G-20 2009b), which were then included in the Basel III Accord by the BCBS. Insufficient liquidity reserves and overleveraging are both aspects that crucially contributed to the magnitude of the recent financial crisis. One might therefore assume that the proposals for these should be encountered with an unequivocal commitment among EU policy-makers and regulators. But this is not the case.

Existing approaches and supervisory regimes for liquidity risk management turned out to be inadequate to appreciate the inherent risk to underlying market practices that put general financial stability at risk (EC 2011d: 8). The liquidity standards proposed by the *CRD IV*, as indicated in Chapter 2, include a liquidity coverage ratio to reinforce short-term liquidity and a net stable funding ratio with a longer-term funding horizon. The rationale behind a liquidity ratio is to mitigate the prevailing reliance of financial institutions on short-term funding to finance long-term, illiquid assets by associating additional costs with this kind of finance. By encouraging longer-term funding, the overarching objective of the liquidity ratio is to counter systemic fragility. Given the background of the financial crisis, it is a decisive challenge for regulatory reform to tackle the poor liquidity-risk management of banks and investment firms and address the problem of maturity mismatches between assets and liabilities. The combination of capital and liquidity requirements is thought to be most efficient in order to increase the stability of the financial system (European Parliament 2011: 59). Nonetheless,

¹¹ Several impact assessments by the BCBS (2010a), the Institute of International Finance (IIF 2010), the Macroeconomic Assessment Group (MAG 2010), established by the Financial Stability Board and the BCBS, and the EC (2011d) find that an increase in capital requirements is likely to have a negative impact especially on short-term economic growth.

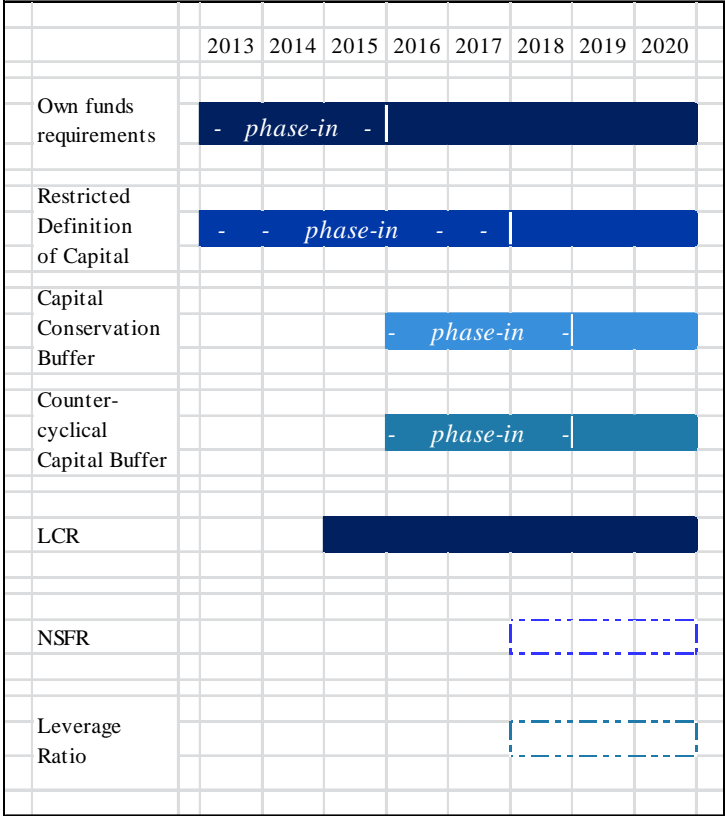
concrete details with regard to the calibration of these requirements remain subject to further initiative by the Commission. Whilst the LCR is conditional on a delegated act by the EC and will not apply before January 2015 (CRR, Art. 444), the EC does not commit itself to a binding implementation of the NSFR at all. The longer-term liquidity standard is subject to an observation period until 2018 (CRR, Recital 76).

The current regulatory framework has no protection mechanism to constrain excessive asset growth or adverse practices of deleveraging. Prior to the crisis, many bank and non-bank financial institutions had built up enormous levels of on- and off-balance sheet leverage. And because high degrees of leverage create negative externalities and bear strong systemic risks, the financial crisis has highlighted the need to contain excessive leverage in the banking sector. The BCBS therefore proposed the implementation of a non-risk based leverage ratio as a “backstop” measure’ (BCBS 2010b: Par. 152) to reduce the propensity for excessive leverage. Subject to a transition period, the Basel Committee suggests a 3 percent non-risk weighted leverage ratio as a supplementary measure to the risk-sensitive capital requirements, to be effective as of 1 January 2018 (BCBS 2010b: Par. 151-167). The EC, however, has not committed itself to a binding implementation of the proposed leverage ratio. The *CRD IV* only includes the leverage ratio as ‘an additional feature [...] with a view to migrating to a binding measure in 2018’ (CRR, Recital 68). While the *CRD IV* includes a clause which empowers the EC to adopt a delegated act on the implementation of a LCR, no such delegated act is included on the leverage ratio. The only binding aspect introduced is the reporting obligations for institutions (CRR, Art. 417), which require them to calculate and report the leverage ratio as of 1 January 2013. Figure 3 provides an overview of *CRD IV*’s scheduled implementation period.

Although the transitional period until 2018 is in line with the international Basel III agreement and sought to allow appropriate review and calibration of the ratio, the EC stops short from binding implementation even in 2018. As stipulated in the recitals, the leverage ratio ‘should be introduced first as an additional feature that can be applied on individual institutions at the discretion of supervisory authorities’ (CRR, Recital 68). Thus, the provisions for the leverage ratio as set out in the *CRD IV* proposal do not only contain a long transitory period but also lack further binding commitments, with the exception of the disclosure requirements. This is the case although a non-risk based leverage ratio already exists in a different form in the United States and Canada, and will be implemented in Switzerland in 2013 (EC 2011d: 37). Hence, the EU could benefit from the experience of

other nations and, despite national specificities, realize a leverage ratio after a shorter implementation period, let alone completely refraining from a binding implementation.

Figure 3: Implementation Timeline as Proposed by the European Commission



Source: European Commission (CRD IV-CRR); Author’s illustration.

The EC’s Impact Assessment showed that smaller EU banks are less leveraged than larger ones. Smaller European banks have an average leverage ratio of 3.1 percent while the average leverage ratio of larger banks measures only half that of smaller banks and amounts to 1.6 percent (EC 2011d). These figures translate into a leverage of 32.25 for smaller and 62.5 for larger banks. As the foreseen leverage ratio of 3 percent is equivalent to a leverage of 33.33, the proposal would have no impact on small institutions but divide the leverage of large ones almost by two. The definite inaction until 2018, however, will lead to extreme levels of leverage. Blundell-Wignall and Atkinson (2010b) calculate that before the phase-in of the capital conservation buffer starting in 2015, average levels of leverage for many banks will be above pre-crisis levels, ranging from 30 in the United States (US) to 44 in Europe.

The commitment to introduce a ‘strengthened liquidity risk measurements’ and a ‘leverage ratio as a supplementary measure to the Basel II risk-based framework’ was expressed by the G-20 leaders at their summit in September 2009 (G-20 2009b). These decisions derive from the observation that banks with weaker structural liquidity and higher leverage proved to be more vulnerable to failures during the financial crisis (Vazquez/Federico 2012). Yet the EC refrains from a binding implementation of the complete set of rules as proposed by the Basel III Accord. Especially the reluctance to implement a leverage ratio represents a serious shortcoming. The need to restrict the accumulation of too much leverage should be prevailing in the wake of the global financial crisis.

3.4. Overreliance on Credit Rating Agencies

In the run-up to the financial crisis, inadequate risk assessments by credit rating agencies (CRAs) lowered the perception of credit risk and resulted in falsely assigned top-quality ratings to financial products, especially with regard to complex financial instruments such as collateralized debt obligations (CDOs). Moreover, the inherent conflict of interest, since it is the issuer and not the investor who pays for the ratings, and the extension of CRAs working fields to consulting services have raised concerns about the objectivity and reliability of their risk assessment. This problem has also been recognized by the De Larosière Report, which stipulates that CRAs should be effectively regulated to ensure that their ‘ratings are independent, objective and of the highest possible quality’ (de Larosière, et al. 2009: Par. 66) and that the ‘use of ratings in financial regulations should be significantly reduced’ (de Larosière, et al. 2009: Recommendation 3). The EC has responded to this regulatory gap with a Credit Rating Agencies Regulation (EC No 1060/2009) and several amendments thereof, which subject CRAs to supervision and common European rules and requirements (Verhelst 2010: 11f.). Although progress is being made in the domain of the first request by the De Larosière Report, CRAs continue to play a central part in the determination of credit risk and within EU regulations, including the *CRD IV*.

The function of CRAs is to evaluate the creditworthiness of financial products or their issuers and assign them corresponding credit ratings. These ratings are then widely used in the context of financial regulation in order to assess risk and determine regulatory capital requirements under the standardized approach. The *CRD IV* proposal determines that banks and investment firms may adopt either the standardized approach, under which risk weights referring to each loan are based on the credit risk assessment of external credit assessment institutions (ECAIs), or the internal ratings based (IRB) approach to compute their minimum

capital requirements. Although the EC proposal states the intention to promote the development and use of institutions' own risk assessments (CRR, Recital 25), the *CRD IV* still relies heavily on ECAs for the determination of risk weights. The rationale behind the IRB approach is that it is more risk-sensitive and, thus, may be more precise. Because capital requirements are determined by the ratio of eligible capital to risk-weighted assets and financial institutions are in general better informed about their borrowers than an external agency, it is thought that the calculation of the denominator (RWAs) can be done more accurately by the institution itself.

CRD IV recognizes the increased risk-sensitivity of the IRB approach (cf. e.g. CRR, Recital 29) and the allowance of external ratings as well as internal risk estimates represents a significant enhancement in the prudential soundness of credit risk rules (CRR, Recital 25). However, in order to be eligible to use the IRB approach, the *CRD IV* sets out a long list of requirements which have to be fulfilled to receive the authorization from the respective competent authority. Chapter 3 of Title I on the IRB approach specifies in 50 articles (CRR, Arts. 137-187) the conditions which have to be met. These include that the institution maintains an independent credit risk control unit responsible for its rating systems (CRR, Art. 139(1)(c)) and that the institution's ratings systems have been validated during an 'appropriate time period' prior to the permission to use it (CRR, Art. 139(1)(f)). In contrast, the standardized approach allows the use of one or more eligible ECAs for the determination of risk weights and states that an institution, which decided to use the standardized approach and the credit assessments from an eligible ECAI, should 'use them in a continuous and consistent way over time' (CRR, Art. 133(b)). Furthermore, the decision to use the standardized approach for a certain class of items should mean the consistent use of the credit assessments to all exposures belonging to that class (CRR, Art. 133(a)). The mention of the standardized approach in the *CRD IV* Regulation in advance to the IRB approach further emphasizes the former in contrast to the latter.

Therefore, the *CRD IV* proposal falls short of providing reasonable incentives to use or convert to the IRB approach. Especially the fact that external ratings do not necessarily reflect the actual underlying risk, as seen during the financial crisis, provides incentives for banks and investment firms with risky exposures to use the standardized approach instead of internal ratings. Nevertheless, one has to consider that the IRB approach has weaknesses of its own. The most obvious is the hazard that financial institutions purposely reduce the perceived underlying risk of their assets in order to decrease the associated minimum capital

requirements. The corresponding concern is that the capital charges do not accurately reflect the degree of risk attached to the assets. Thus, an improvement to the IRB approach is necessary, particularly with regard to its consistency as well as towards greater coordination and stricter monitoring of internal risk models. Each financial institution employs its own unique methodology and risk model to assign ratings which produces extremely diverse results for risk weightings, despite identical inputs (Larson 2011). All in all, financial institutions will continue to rely largely on the assessment of ECAs under the new capital rules instead of using internal credit assessments.

3.5. Risk Weightings

One of the prime objectives of the *CRD IV* proposal is to improve institutions' risk management and the evaluation of assets' underlying risk. But some provisions in certain areas remain unchanged albeit they proved to be inadequate or insufficient. The most notable example is the uniform zero-percent government risk weight. All EU member states' central governments enjoy a standardized zero-risk weighting for their debt obligations that are denominated and funded in the domestic currency (CRR, Art. 109(4)). However, the global financial and economic crisis, which evolved into the European sovereign debt crisis, has amply demonstrated that government bonds are not inevitably risk-free. Several countries in the Euro Area have experienced difficulties refinancing their debt, mostly caused by banking sector bailouts and government rescue packages to the financial system in order to restore its stability. Therefore, countries such as Greece, Portugal, Ireland, and Spain have revealed that government bonds are far from being risk-free and that the provision of uniform zero-percent risk weights for exposures to all EU central governments is flawed.

Furthermore, sovereign zero-risk exposures within the EU are exempted from the large exposure regime. A large exposure, as defined in the Regulation, is an institution's exposure to a client or group of connected clients where its value is at least 10 percent of its eligible capital (CRR, Art. 381). Regulators are in general concerned about a concentration of credit risk exposures to a single client (or group of connected clients) because of the serious impact a default of these loans could have on the financial condition of the lending institution. That is why the *CRD IV* sets out that large exposure should be limited to a maximum of 25 percent of an institution's eligible capital (CRR, Art. 384(1)). This limitation of large exposures, however, does not apply to sovereign exposures. Asset items constituting claims on central governments and other exposures attributed to or guaranteed by central governments are exempt from the terms for large exposures (CRR, Art. 389(1)(a) and (d)).

This implies that while government bonds have been found to be non-risk free, large exposures to central governments are not limited. Thus, a financial institution could be overly exposed to the trend of ‘risky’ government bonds.

Besides exposures to central governments, small- and medium-sized enterprises (SMEs) also enjoy a special treatment under the *CRD IV* proposal. Institutions can already benefit from preferential risk weights applied to exposures to natural persons or SMEs under current EU law (CRR, Recital 48). This will continue to hold under the *CRD IV* framework. While loans to SMEs are treated like those to natural persons, exposures to SMEs are assigned a risk weight of 75 percent (CRR, Art. 118). Thus, they do not enter with their full amount into the risk calculation and are, moreover, assigned a lower risk weight than unrated exposures to central governments or central banks (CRR, Art. 109(1)). The advantageous management of risk weights associated with exposures to SMEs is an important feature for avoiding adverse economic consequences. Since a rise in capital requirements may lead to a cut in the credit supply and/or increase risk-taking incentives, SMEs are likely to experience more difficult credit conditions or even credit problems. However, since SMEs constitute an important part of the economy, the proposal aims at mitigating this effect with the provision and by rendering loans to SMEs more attractive. Nonetheless, since corporate borrowers might be riskier than the preferential risk-weight reflects, this can lead to an enlarged divergence between risk weights and the actual underlying risk. And the favorable risk weights might eventually even be further reduced, since the EC intends to submit a report within 24 months after the entry into force of the Regulation, which is to evaluate the possible merits of lowering the risk weights or expanding their application to more exposures (CRR, Recital 48; Art. 485).

Another factor of the *CRD IV* risk weighting fallacies is that exposures to real estate continue to benefit from a more favorable risk assessment than others. Exposures ‘fully and completely’ secured by mortgages on residential property are assigned a risk weight of 35 percent (CRR, Art. 120(a)) and exposure secured by mortgages on offices or other commercial premises will be assigned a risk weight of 50 percent (CRR, Art. 121(a)). These risk-weighting provisions, however, may be adapted by the national competent authorities (CRR, Art. 119(2)). Thus, given certain preconditions, loans that are collateralized with a real estate property will receive a favorable treatment and will not be counted with their full amount into the risk assessment. Especially against the background of the crucial role that the real estate sector in the US and the inflation of a respective housing bubble played in

triggering the recent financial crisis, this preferential treatment of mortgages appears to be not justified.

The above analyzed range of potential consequences of the proposal constitutes a strong, though non-exhaustive, list of fallacies incorporated in the *CRD IV*. The proposal addresses several issues where deficiencies or shortcomings have been detected in the course of the global financial crisis. However, in solving these issues, it poses the danger of potentially unintended consequences.

4. Shortcomings of the CRD IV Proposal

The following section addresses the shortcomings of the *CRD IV* proposal, which comprise aspects that have been omitted or neglected by this piece of legislation but constitute critical fields for regulatory action.

4.1. Shadow Banking System

The shadow banking sector contributed to a large extent to the magnitude of the financial crisis. By providing opportunities for risk-shifting, multiple securitization, and excessive leverage, the shadow banking sector did not only allow institutions to yield high returns but also to evade regulatory capital requirements. The Financial Stability Board (FSB) recognized that this sector constitutes a rising area of non-bank credit activity that, in aggregate, accounts for 25-30 percent of the total financial system (FSB 2011: 8). And due to the complexity of shadow banking entities and activities, there is a considerable amount of risk arising from this area which can endanger the stability of the entire system. This has been demonstrated during the global financial crisis.

The *CRD IV* covers prudential requirements for credit institutions and investment firms, and therewith expands the scope of application compared to the Basel III rules, which only apply to ‘internationally active banks’ (BCBS 2010b: 3). The challenges arising from the shadow banking sector, however, are not effectively addressed by the *CRD IV*. The main aspects where off-balance sheet exposures are considered represent the calculation of the leverage ratio, the context of the new liquidity requirements, and the calculation of the exposure amounts.

The inclusion of off-balance items in the calculation of the leverage ratio is definitely a good start. A non-negligible part of credit institution's and investment firm's leverage is related to the shadow banking sector and in order to effectively limit the excessive build-up of leverage, the shadow banking sector has to be included as well (cf. CRR, Art. 416). With regard to the liquidity requirements, the *CRD IV* sets out that institutions shall at all times hold liquid assets equal or greater than liquidity outflows less liquidity inflows under stressed conditions (CRR, Art. 401), while including off-balance sheet obligations in the calculation of liquidity outflows (CRR, Art. 408). Therefore the proposal intends to ensure that *all* expected liquidity outflows are considered and institutions truly hold a sufficient level of liquid assets. Moreover, off-balance sheet items are considered at several points in the calculation of risk-weighted exposure amounts and own funds requirements (cf. for example CRR, Arts. 240, 241, and 315ff.). The *CRD IV* increases the risk-weights of securitized assets from the former 20 percent¹² to about 100 percent¹³, but the general risk stemming from securitization and off-balance sheet transactions are not sufficiently addressed. The combination of its lack of transparency and the interconnectedness with the regulated banking sector leads to a large systemic risk arising from the shadow banking sector.

The immanent concern with the shadow banking sector is that it is neither transparent nor regulated. An increasing scope of banking activity is conducted outside the regular banking system, involving entities and activities that evade stringent regulation. As a result, the collection of statistical data and detailed information from non-bank financial institutions is still very poor. Hence, there is a strong need for a broader collection of information on counterparty activity, the flow of funds, and the interconnectedness with the regulated banking sector. This 'pressing need to fill the current data gaps on the interconnectedness between banks and non-bank financial institutions on a global basis' has also been recognized by the EC in a recent discussion document on shadow banking (EC 2012a: 6). The stated aim is to identify the channels of exposures, limit excessive exposure to shadow banking entities, and improve the disclosure requirements of banks towards exposures to shadow banking entities (EC 2012a: 11).

¹² The exposure value of 20 percent is assigned to medium- to low-risk off-balance sheet items, in accordance with article 78(1) of the Recast Banking Directive (2006/48/EC) (EC 2006).

¹³ Under the *CRD IV* framework, the calculation of the exposure values of off-balance sheet securitization positions, where 'an originator institution has transferred significant credit risk associated with securitised [sic] exposures' (CRR, Art. 240) differs according to the applied risk measurement technique, standardized or IRB approach (CRR, Art. 241 (c) and (d)).

The most common approach to reduce the interconnectedness with the shadow banking sector is to monitor and limit banks' exposure to shadow entities. Restricting the amount of transactions between regulated and marginal institutions will ultimately reduce the interconnectedness between the two spheres. This has also been suggested by the FSB (2011) in a report on the oversight and regulation of the shadow banking sector published in fall 2011, which also proposes limits on the size and even the nature of banks' exposure to shadow banking entities (FSB 2011: Recommendation 2). This might also reduce the size and leverage of individual entities. The FSB (2011) emphasizes that as long as shadow banking entities and activities can operate at lower levels of regulation and supervision than the rest of the financial sector, they benefit from a competitive advantage relative to regulated banks. This is likely to create incentives to move banking activities from the traditional to the shadow banking sector. As mentioned above, the risk-weights under the *CRD IV* might induce increased risk shifting, especially towards less regulated areas such as the shadow banking sector. Financial institutions will have greater incentives to securitize their assets in order to evade regulatory capital requirements and not be obliged to hold significant capital buffers against them.

In order to prevent regulatory arbitrage, it is indispensable to increase the regulation of the shadow-banking sector and include such entities in the regulation of capital adequacy standards. The shadow banking sector needs to be subject to the same requirements as traditional banks to prevent regulatory arbitrage and strengthen financial stability. This has also been stressed by Kashyap, Stein, and Hanson (2010) who claim that similar capital standards must be imposed on a given type of credit exposure irrespective of who 'winds up holding the asset' (33). They express major concerns about the migration of credit-creation activity to the shadow banking sector, with the potential to increase overall financial system fragility.

The need for a more extended scope of capital regulation has already been pointed out by the De Larosière Report (2009, Recommendation 7) and taken up by the FSB, which calls for the inclusions of investment funds and hedge funds into the capital adequacy regulation (Recommendation 3). While existing EU banking legislation is limited to deposit-taking institutions, the EC stated its intention to consider an enlargement of the scope of financial institutions and activities under the EU capital framework (EC 2012a: 11). However, one has to be prepared that the expansion of capital regulation to the shadow banking sector will channel efforts towards innovative capacities to create new instruments, because the financial

sector is continually adapting to the new regulatory environment. Nonetheless, this should not be an argument against a broader regulation of financial services.

4.2. Lack of Diversification

A further shortcoming of the *CRD IV* proposal is its failure to provide for an adequate diversification of exposures. One of the main lessons from the subprime crisis in the US is the need for a better monitoring of diversification. The extensive exposure of some financial institutions to asset-backed securities not only caused serious financial disruptions for the institutions themselves but also for the entire financial system. Nonetheless, the homogeneity of assets and bank business models is not addressed by this legislative package.

The need to improve supervision and identify business branches where activity is disproportionately concentrated has been raised by several scholars (Acharya forthcoming; Blundell-Wignall/Atkinson 2010b; Brunnermeier, et al. 2009; Eichengreen, et al. 2011; Hache 2012). If institutions concentrate on loans to a particular category of borrowers, they are completely exposed to the risk of declining demand for the respective products.

Moreover, it is claimed that the regulation induces banks to adopt similar business models. The differential treatment of assets according to their risk weights may lead to a concentration in favored asset classes (Blundell-Wignall/Atkinson 2010b: 14). And if the majority of financial actors engage in trading similar assets, this poses a serious threat to overall financial stability. The *CRD IV*'s only attempt to avoid a concentration of exposures is the proposal to adopt rules for the monitoring and control of large exposures. However, restricting the extent of large exposures only constrains the concentration of loans to a single client (or group of connected clients) instead of limiting the exposure to a certain type of asset.

4.3. Problem of 'Too-Big-To-Fail'

The current regulatory system implicitly subsidizes institutions for being highly interconnected or 'too big to fail'. If a financial institution is so large that its default is feared to have disastrous consequences for the entire economy, it is highly likely that national governments will opt for a supportive intervention when the institution faces financial difficulties. This involves an inherent moral hazard problem. Financial institutions might be incentivized to assume greater risk if they 'know' that they will receive unconditional support from the government and be bailed out in case of large failures.

Dealing with these systemically important financial institutions (SIFIs) should be part of the cross-sectional dimension of macroprudential supervision identified by Borio (2009), which is concerned about how aggregate risk is distributed in the financial system. The risk of cross-border spillovers from distressed systemically relevant institutions was demonstrated by the global financial crisis, when enormous amounts of government bailout money were required to rescue ailing institutions. As the ‘too-big-to-fail’ problem constitutes a disaster for market discipline, this issue needs to be part of the financial regulatory reform. The commitment to this endeavor was expressed by the G-20 leaders in November 2010, when they stated that ‘no firm should be too big or too complicated to fail’ and that especially ‘financial institutions that are globally systemic [...] should have higher loss absorbency capacity to reflect the greater risk that the failure of these firms pose to the global financial system’ (G-20 2010: Par. 30). Nonetheless, the *CRD IV* does not include additional requirements for systemically important institutions. Therewith, it is less far-reaching than the Basel III Accord, which contains the intention to propose an additional capital charge for SIFIs in order to ensure their loss absorbing capacity (BCBS 2010b: Par. 32).¹⁴ An additional capital charge could reduce the risk of insolvency for SIFIs and mitigate the moral hazard problem. Moreover, institutions could be discouraged from growing to such ‘systemically important’ size that they cannot be left to default.¹⁵

One of the major problems during the financial crisis was the lack of a mechanism to deal with large failing institutions. While EU financial markets are increasingly integrated, bank resolution policies remain at the national level, which impedes the ability of European governments to deal with cross-border issues. In order to improve the procedures to deal with financially distressed banks and introduce a credible common resolution mechanism in the EU, the EC submitted a proposal for a Directive which establishes a framework for the recovery and resolution of credit institutions and investment firms in June 2012.¹⁶ Although a common resolution mechanism is not yet in place, it is part of the Commission’s overall vision for the banking union of the Euro zone, which was endorsed by the heads of state and

¹⁴ In the meantime, the BCBS has published its rules text ‘Global Systemically Important Banks: An Assessment Methodology and the Additional Loss Absorbency Requirement’ (November 2011).

¹⁵ Discouraging financial institutions from growing to such a size also bears disadvantages, for instance, for its customers when diseconomies of scale lead to increased service charges.

¹⁶ COM (2012) 280/3, Proposal for a Directive of the European Parliament and of the Council establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directives 77/91/EEC and 82/891/EC, Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC and 2011/35/EC and Regulation (EU) No 1093/2010.

government at their summit meeting on 13-14 December 2012.¹⁷ The existence of effective resolution regimes is important to prevent the repeated need for unprecedented levels of taxpayers' money to rescue troubling institutions. Improved resolution procedures for SIFIs could also help to curtail the 'too-big-to-fail' problem by providing for a controlled break-up.

4.4. No 'Volcker Rule'

Recent years have demonstrated that banks' risk-intensive activities can lead to a global financial crisis. Many credit institutions have tried to yield higher returns by engaging in all kinds of risky activities for their own account. The most important aspect of this *proprietary trading* is that institutions in this case do not act as intermediaries for their customers but trade with their own money, in order to realize profits for themselves. Because the combination of commercial and investment banking activities led to high degrees of leverage and risk-taking, it is a prevailing claim that retail and investment banking operations need to be separated.

The United States included such separation as part of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. This so-called Volcker Rule¹⁸ limits commercial bank activities in proprietary hedge funds and private equity funds to the amount equivalent to 3 percent of Tier 1 capital, and prohibits banks from propriety trading (Cooley/Walter 2011: 47). In contrast to the US, no such provision exists in EU legislation. Only the United Kingdom is currently discussing the proposals of the Independent Commission on Banking (ICB), which aim at separating retail banking from global wholesale and investment banking for all banks in the United Kingdom (IMF 2012a: 62).

It should be the core objective to bring the financial system back to its fundamental role, i.e. to serve the economy by allocating resources. A separation of investment banking and commercial banking would reduce the risk and scope of commercial banks' activities and most probably lead to a reduction of the size of the financial system in terms of trade volume. Moreover, it would facilitate the resolution of retail banks and thus provide a greater security

¹⁷ The Commission's vision for the banking union includes a single supervisory mechanism for the oversight of Euro zone banks, a common deposit guarantee scheme, and a single bank resolution mechanism. While the single supervisory mechanism was adopted at the December summit, reaching an agreement on the other two proposals was declared a top priority and shall be concluded before June 2013 (European Council 2012).

¹⁸ The Volcker Rule is named after the US American economist and former United States Federal Reserve Chairman Paul Volcker, who originally proposed the restriction of proprietary trading (Richardson, et al. 2011: 198).

for depositors' money in the case of severe difficulties. Nonetheless, a more fundamental disintegration of the financial system should be considered.

5. Conclusion

The request for a stricter framework of capital requirements was countered by an internationally coordinated approach through the new Basel III Capital Accord, which was then agreed at G-20 level. The objective of an improved regulation of the banking sector is to restore financial and economic stability and force banks to internalize some of the costs of potential failures by means of capital adequacy requirements. The *CRD IV* proposal constitutes an important step towards a more regulated banking sector. The re-definition of capital substantially enhances the loss-absorption capacity of regulatory capital and aims to ensure that the highest quality of capital will be able to fully absorb potential losses as they occur. Moreover, the *CRD IV* introduces two capital buffers and increases the amount of minimum capital requirements. However, the proposal is in general not ambitious and comprehensive enough, and merely refines the current framework. It stops short of making an unequivocal commitment to introduce the leverage ratio and long-term liquidity requirements and fails to address several aspects which may provoke adverse behavior and have strongly negative consequences. One of the prime deficiencies of the proposal is the failure to change the calculation of capital requirements and address the procyclicality problem associated with it. Instead of tackling the source of the problem, the *CRD IV*, in line with Basel III, leaves in place the capital scheme and introduces a countercyclical capital buffer to dampen procyclical effects. The *CRD IV* proposal is in general less far-reaching than the Basel III agreement, since it fails to commit itself to introduce binding rules for the leverage ratio and long-term liquidity requirements. Thus, it fails to commit itself to a binding implementation of two of the innovative and most essential components of the Basel III agreement that try to tackle detected shortcomings of the financial crisis. It also fails to prevent regulatory arbitrage or properly address the challenges arising from the shadow banking sector. Exposures of regulated institutions to shadow banking entities should thus be closely monitored and limited, therewith reducing the interconnectedness. The ultimate goal, however, should be to expand the scope of capital regulation to the shadow banking sector.

Overall, the *CRD IV* framework is an important improvement of microprudential regulation towards the resilience of individual institutions. However, it only insufficiently

addresses essential issues of systemic risk, regulatory arbitrage, or the fragility of the financial system. The International Monetary Fund (IMF) called on policy-makers to make use of the recent stabilization gains and promptly implement a comprehensive set of policies to attain lasting stability (IMF 2012a: xiii). Nonetheless, the *CRD IV* arranges for long transition periods and postpones several vital elements. This bears the risk of losing the recent political readiness for reforms and means that important elements will not be effective before 2018, if at all. It remains to be seen whether the Commission's proposal will be further strengthened or relaxed in the course of the *trilogues* with the European Parliament and the respective configuration of the Council, and how stringent the final piece of legislation will be.

References

- Acharya, V. V., forthcoming. A Theory of Systemic Risk and Design of Prudential Bank Regulation. *Journal of Financial Stability*, pp. 1-49.
- Acharya, V. V. & Richardson, M., 2009. Causes of the Financial Crisis. *Critical Review: A Journal of Politics and Society*, 21(2-3), pp. 195-210.
- Agénor, P.-R. & Pereira da Silva, L. A., 2012. Cyclical Effects of Bank Capital Requirements with Imperfect Credit Markets. *Journal of Financial Stability*, Volume 8, pp. 43-56.
- Aliaga-Díaz, R. & Olivero, M. P., 2009. *Do Bank Capital Requirements Amplify Business Cycles? Bridging the Gap Between Theory and Empirics*. [Online] Available at: http://faculty.lebow.drexel.edu/OliveroM/research/capital%20requirements-Aliaga_Diaz-Olivero-December09-R1.pdf [Accessed 30 June 2012].
- Angelini, P. et al., 2011. Basel III: Long-term Impact on Economic Performance and Fluctuations. *Questioni di Economia e Finanza*, February, Volume 87.
- Balling, M., Berk, J. M. & Strauss-Kahn, M.-O., 2010. *The Quest for Stability: The Financial Stability View*. Vienna: SUERF.
- Basel Committee on Banking Supervision, 2009. *History of the Basel Committee and its Membership*. Basel: Bank for International Settlements.
- Basel Committee on Banking Supervision, 2010a. *An Assessment of the Long-Term Economic Impact of Stronger Capital and Liquidity Requirements*. Basel: Bank for International Settlements.
- Basel Committee on Banking Supervision, 2010b. *Basel III: A Global Regulatory Framework for more Resilient Banks and Banking Systems*. Basel: Bank for International Settlements.
- Basel Committee on Banking Supervision, 2010c. *Basel III: International Framework for Liquidity Risk Measurement, Standards and Monitoring*. Basel: Bank for International Settlements.
- Blundell-Wignall, A. & Atkinson, P., 2010a. Thinking Beyond Basel III: Necessary Solutions for Capital and Liquidity. *OECD Journal: Financial Market Trends*, 2(1), pp. 9-33.
- Blundell-Wignall, A. & Atkinson, P., 2010b. *What Will Basel III Achieve?*. s.l.:The German Marshall Fund of the United States.
- Borio, C., 2009. Implementing the Macroprudential Approach to Financial Regulation and Supervision. *Banque der France Financial Stability Review*, Issue 13, pp. 31-41.
- Brouwer, H. J., 2010. Macroprudential Supervision: From Concept to Practice. In: M. Balling, J. M. Berk & M. Strauss-Kahn, eds. *The Quest for Stability: The Financial Stability View*. Vienna: SUERF, pp. 7-13.
- Brunnermeier, M. et al., 2009. *The Fundamental Principles of Financial Regulation*. Geneva: International Center for Monetary and Banking Studies.
- Cooley, T. & Walter, I., 2011. The Architecture of Financial Regulation. In: V. V. Acharya, T. F. Cooley, M. Richardson & I. Walter, eds. *Regulating Wall-Street. The Dodd-Frank Act and the New Architecture of Global Finance*. Hoboken, New Jersey: Wiley, pp. 35-51.

- Dam, K. W., 2010. The Subprime Crisis and Financial Regulation: International and Comparative Perspectives. *Chicago Journal of International Law*, 10(2).
- de Larosière, J. et al., 2009. *The High-Level Group on Financial Supervision in the EU*. Brussels: European Commission.
- Drehmann, M. & Gambacorta, L., 2012. The Effects of Countercyclical Capital Buffers on Bank Lending. *Applied Economics Letters*, 19(7), pp. 603-608.
- Drumond, I., 2009. Bank Capital Requirements, Business Cycle Fluctuations and the Basel Accords: A Synthesis. *Journal of Economic Surveys*, 23(5), pp. 798-830.
- Eichengreen, B. et al., 2011. *Rethinking Central Banking Committee on International Economic Policy and Reform*. Washington, D.C.: Committee on International Economic Policy and Reform.
- European Commission, 2006. *Directive 2006/48/EC of the European Parliament and of the Council*. Brussels: European Commission.
- European Commission, 2011a. *Regulating Financial Services for Sustainable Growth*. Brussels: European Commission.
- European Commission, 2011b. *Proposal for a Directive on the Access to the Activity of Credit Institutions and the Prudential Supervision of Credit Institutions and Investment Firms*. Brussels: European Commission.
- European Commission, 2011c. *Proposal for a Regulation on Prudential Requirements for Credit Institutions and Investment Firms*. Brussels: European Commission.
- European Commission, 2011d. *Commission Staff Working Paper Impact Assessment*. Brussels: European Commission.
- European Commission, 2012a. *Green Paper. Shadow Banking*. Brussels: European Commission.
- European Commission, 2012b. *New Proposals on Capital Requirements (CRD IV Package)*. [Online] Available at: http://ec.europa.eu/internal_market/bank/regcapital/new_proposals_en.htm [Accessed 13 June 2012].
- European Council, 2012. *European Council 13/14 December 2012 Conclusions*. Brussels: European Council.
- European Parliament, 2011. *CRD IV – Impact Assessment of the Different Measures within the Capital Requirements Directive IV*. Brussels: European Parliament.
- Ferguson, T. & Johnson, R., 2009. Too Big to Bail: The “Paulson Put,” Presidential Politics, and the Global Financial Meltdown. *International Journal of Political Economy*, 38(1), pp. 3-34.
- Financial Stability Board, 2011. *Shadow Banking: Strengthening Oversight and Regulation*. Basel: Financial Stability Board.
- Financial Stability Forum, 2009. *Report of the Financial Stability Forum on Addressing Procyclicality in the Financial System*. s.l.: Financial Stability Forum.
- Francis, W. B. & Osborne, M., 2012. Capital Requirements and Bank Behavior in the UK: Are there Lessons for international Capital Standards? *Journal of Banking and Finance*, Volume 36, pp. 803-816.

- Giammattei, A. et al., 2010. *Bank Capital under Basel 3: Open Issues and Foreseeable Effects*. Milan: Università Commerciale Luigi Bocconi.
- Gomes, T. & Khan, N., 2011. *Strengthening Bank Management of Liquidity Risk: The Basel III Liquidity Standards*. Ottawa: Bank of Canada.
- Group of Twenty, 2009a. *Declaration on Strengthening the Financial System - London Summit*. London: s.n.
- Group of Twenty, 2009b. *Pittsburgh Summit Declaration*. Pittsburgh.:s.n.
- Group of Twenty, 2010. *The Seoul Summit Document*. Seoul: s.n.
- Hache, F., 2012. *To End all Crises? Implementing Basel III in the European Union*. s.l.:Finance Watch.
- Hanson, S. G., Kashyap, A. K. & Stein, J. C., 2011. A Macroprudential Approach to Financial Regulation. *Journal of Economic Perspectives*, 25(1), pp. 3-28.
- Hester, D., 2008. *The Evolution of Monetary Policy and Banking in the US*. Berlin: Springer.
- Institute of International Finance, 2010. *Interim Report on the Cumulative Impact on the Global Economy of Proposed Changes in the Banking Regulatory Framework*. Washington, D.C.: Institute of International Finance.
- International Monetary Fund, 2012a. *Global Financial Stability Report. The Quest for Lasting Stability*. Washington, D.C.: International Monetary Fund.
- International Monetary Fund, 2012b. *World Economic Outlook - Growth Resuming, Dangers Remain*. Washington, D.C.: International Monetary Fund.
- Kashyap, A. K. & Stein, J. C., 2004. Cyclical Implications of the Basel II Capital Standards. *Economic Perspectives*, pp. 18-31.
- Kashyap, A. K., Stein, J. C. & Hanson, S., 2010. *An Analysis of the Impact of "Substantially Heightened" Capital Requirements on Large Financial Institutions*. [Online] Available at: http://www.people.hbs.edu/shanson/Clearinghouse-paper-final_20100521.pdf [Accessed 23 April 2012].
- King, P. & Tarbert, H., 2011. Basel III: An Overview. *Banking and Financial Services Policy Report*, May, 30(5), pp. 1-19.
- Larson, J., 2011. *The Basel Capital Accords*. [Online] Available at: <http://ebook.law.uiowa.edu/ebook/sites/default/files/Basel%20Accords%20FAQ.pdf> [Accessed 13 May 2012].
- Macroeconomic Assessment Group, 2010. *Final Report - Assessing the Macroeconomic Impact of the Transition to Stronger Capital and Liquidity Requirements*. Basel: Bank for International Settlements.
- Maes, I., 2010. Alexandre Lamfalussy and the Origins of the BIS Macro-Prudential Approach to Financial Stability. *PSL Quarterly Review*, 63(254), pp. 265-292.
- Malhère, M., 2012. CRD IV: Council Tackles Issue of Bank Equity. *Europolitics*, 18 April, Issue 4407, pp. 2-5.
- Marzinotto, B. & Rocholl, J., 2010. The Unequal Effect of New banking Rules in Europe. *Bruegel Policy Contribution*, October, Volume 10.

- Modigliani, F. & Miller, M. H., 1958. The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, Juni, pp. 261-297.
- Montanaro, E. & Tonveronachi, M., 2011. A Critical Assessment of the European Approach to Financial Reforms. *PSL Quarterly Review*, 64(258), pp. 193-226.
- Pesenti, P., 2011. Comments on 'The international transmission of the financial crisis' by Gian Maria Milesi-Ferretti. In: J. Pisani-Ferry, A. Posen & F. Saccomanni, eds. *An Ocean Apart? Comparing Transatlantic Responses to the Financial Crisis*. Brussels: Bruegel, pp. 48-55.
- Quaglia, L., 2010. *Governing Financial Services in the European Union: Banking, Securities and Post-trading*. London: Routledge.
- Repullo, R. & Saurina, J., 2011. *The Countercyclical Capital Buffer of Basel III. A Critical Assessment*. s.l.:s.n.
- Repullo, R. & Suarez, J., 2008. *The Procyclical Effects of Basel II*. s.l.:s.n.
- Repullo, R. & Suarez, J., 2009. The Procyclical Effects of Bank Capital Regulation. *European Banking Center Discussion*, October.
- Resti, A., 2002. *The New Basel Capital Accord - Structure, Possible Changes and Micro- and Macroeconomic Effects*. Brussels: Center for European Policy Studies.
- Richardson, M., Smith, R. C. & Walter, I., 2011. Large Banks and the Volcker Rule. In: V. V. Achary, T. F. Cooley, M. Richardson & I. Walter, eds. *Regulating Wall Street. The Dodd-Frank Act and the New Architecture of Global Finance*. Hoboken, New Jersey: Wiley, pp. 181-213.
- Rochet, J.-C., 2010. Systemic Risk: Changing the Regulatory Perspective. *International Journal of Central Banking*, pp. 259-276.
- Schinasi, G. J. & Truman, E. M., 2010. Reform of the Global Financial Architecture. *Bruegel Working Paper*, Volume 5.
- Schoenmaker, D., 2010. The Quest for Financial Stability in Europe. In: M. Balling, J. M. Berk & M. Strauss-Kahn, eds. *The Quest for Stability: The Financial Stability View*. Vienna: SUERF, pp. 31-49.
- Shleifer, A. & Vishny, R., 2011. Fire Sales in Finance and Macroeconomics. *Journal of Economic Perspectives*, 25(1), pp. 29-48.
- Simkovic, M., 2011. Competition and Crisis in Mortgage Securitization. *Indiana Law Journal*, 8 October.
- Slovik, P. & Cournède, B., 2011. Macroeconomic Impact of Basel III. *OECD Economics Department Working Papers*, Volume 844.
- Tonveronachi, M. & Montanaro, E., 2009. Some Preliminary Proposals for Re-regulating Financial Systems. *Quaderni Del Dipartimento di Economia Politica n. 553*, January.
- Vazquez, F. & Federico, P., 2012. *Bank Funding Structures and Risk: Evidence from the Global Financial Crisis*. Washington, D.C.: International Monetary Fund.
- Verhelst, S., 2010. Addressing the Financial Crisis: The EU's Incomplete Regulatory Response. *Egmont Paper*, Issue 39, pp. 3-42.
- Wessel, D., 2009. *In Fed We Trust - Ben Bernanke's War on the Great Panic*. New York: Crown Business.

Imprint

Editors

Sigrid Betzelt | Trevor Evans | Eckhard Hein | Hansjörg Herr |
Martin Kronauer | Birgit Mahnkopf | Achim Truger

ISSN 1869-6406

Printed by
HWR Berlin

Berlin January 2013