CEPS POLICY BRIEF
Thinking ahead for Europe

Implementing Basel III in Europe: Diagnosis and avenues for improvement

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Adopted by the European Commission in July 2011, the proposed Capital Requirements Directive and Regulation (CRD IV-CRR) translate into EU law the Basel III standards adopted by the Basel Committee for Banking Supervision (BCBS).[1] Among other things, the proposal increases the quality and quantity of the minimum capital; introduces new rules on liquidity, leverage ratios, counter-cyclical buffers and systemically important financial institutions; and amends the definitions of counterparty credit risk and rules for the banking book. The rules complement the earlier amendments that strengthened the capital and disclosure requirements for the trading book and re-securitization instruments as well as requirements to ensure that remuneration policies do not lead to excessive risk-taking.

Most European banks have resisted the implementation of the new round of reforms, noting that the stricter capital requirements would lead to a significant de-leveraging, causing a contraction of credit to the private sector and thus hurting growth. In turn, many academics and independent experts argue that the hike in minimum capital requirements will have little impact on lending levels. Indeed, recent research shows that large banks will be able to meet the stricter requirements without significant hardship, in many cases simply by retaining their earnings, engaging in debt-equity swaps or re-adjusting internal models to reduce the capital charges.

Other observers claim that the CRD IV-CRR proposal has been watered down, mainly to appease the private interests of financial institutions and the banking industry within Europe. Although some of these concerns may be exaggerated, it is true that the proposal is less far-reaching than the Basel III Accord itself, effectively stopping short of introducing (or committing to introduce) binding rules for the leverage ratio and the long-term liquidity requirements.

Many key details have been partially addressed or simply postponed, to be resolved over long transition periods, lasting up until 2018, inviting the risk of losing the political momentum to strengthen banking regulation. Moreover, some of the emerging regulatory concerns have been at best indirectly addressed, including macro-prudential and systemic issues, links with the crisis-management framework and the challenges arising from the shadow banking sector.

As such, the proposal leaves a large margin of manoeuvre to the European Parliament and the Council to either strengthen or to further loosen the banking rules in Europe.[2]

[1] The CRD IV proposal comprises a Directive (COM(2011) 453 final) and a Regulation (COM(2011) 452 final), both published on 20 July 2011.

[2] Annex 1 summarizes the key policy discussions in the 'trialogue' taking place between the European Commission, Parliament and Council during 2012.

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All and all, the CRD IV-CRR proposal should not be seen as an end in itself but rather as a part of the EU's broader regulatory response to the financial crisis.

This Policy Brief provides a preliminary diagnosis of the proposed regulatory reforms under the proposal and suggests avenues for improvement that would address some of these concerns.

The main criticism is that the proposal is not ambitious enough. In some crucial areas, such as the leverage ratio and the long-term liquidity requirements adopted under the Basel III framework, the CRD IV-CRR proposal stops short of making a strict commitment to introduce binding requirements and instead is contented with weaker (and possibly divergent) disclosure requirements.

Minimum capital requirements

The recent financial crisis has amply demonstrated that existing capital cushions are far from adequate to absorb losses or prevent widespread panics. Up until the moment the troubles emerged, many of the failed or rescued banks were in compliance with the minimum capital requirements. The brunt of the criticism has been the increased reliance on lower quality capital, especially the non-tangible equity and hybrid instruments, which may not be sufficient to absorb losses as a bank continues to operate, (Blundell-Wignall & Atkinson, 2010; Viñals et al., 2010).

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The loss-absorption capacity of regulatory capital has been one of the central innovations of the Basel III framework and the CRD IV-CRR proposal. The proposed changes aim to ensure that the strictest definition of regulatory capital (i.e. the Tier-1 capital) is truly loss-absorbing and can support a bank to operate as a going concern. In the case of some of the hybrid convertible instruments that have been accepted as Tier 1 capital under Basel II and its European variant, conversion to equity required a failure event to occur. However, rescues by national authorities meant that such an event never took place, calling into question the effective loss-absorption of such instruments.

The Basel Committee on Banking Supervision (BCBS) proposed a number measures under the Basel III framework to strengthen the regulatory requirements on the definition of capital. In implementing these agreements, the CRD IV-CRR proposal aims at harmonizing the definition of capital within the EU while voluntarily opting for some divergences from the original Basel framework. In line with the Basel III rules, the common equity Tier 1 capital is defined as the most junior and restrictive form of regulatory capital, entering into force in 2013 and onwards.[3]

Additional Tier 1 instruments are composed of equity-like instruments that can absorb losses when the entity remains solvent (i.e. 'going-concern capital'), leaving some of the less loss-absorbing convertible instruments to Tier 2 (i.e. 'gone-concern capital'). The new rules also eliminate the use of Tier 3 capital instruments, which were first introduced under Basel II to cover market risks.

Although the Regulation provides the general criteria for qualifying instruments, many details are left to be ironed out by the European Banking Authority (EBA). If national authorities can challenge EBA for political reasons, a race-to-the-bottom may ensue. Recent evidence shows that such concerns are well-founded.

> ***If national authorities can challenge EBA for political reasons, a race-to-the-bottom may ensue.***

Under its 2011 stress tests, the European Banking Authority (EBA) originally suggested that government capital support measures can count

[3] The common equity Tier 1 is comprised of equity that is paid-up, perpetual, not repayable with the exception of liquidation, excluding preferential shares, with distributions that are payable after all obligations are met, taking the first and largest share of losses, entitling owners to residual assets, with the paid-in amount not secured by any arrangement to enhance the seniority of the claim (Capital Requirements Regulation (CRR), Art. 26(1)). In addition, a number of prudential adjustments and deductions are made, including intangible assets and goodwill, deferred tax assets on future tax-related earnings, expected loss amounts for institutions that use the internal-risk basis (IRB) approach, minority interests and own- or cross-holdings of own common equity Tier 1 instruments (to avoid double counting) (CRR, Arts. 29-43).

towards the strictest form of regulatory capital (i.e. core Tier 1 capital) only if they satisfy the general requirements applicable to all forms of equity. This would imply that the convertible instruments widely used by German authorities to recapitalize the banks would fail to qualify. By the summer of 2011, the suggested treatment by EBA received extensive criticism from both regional and federal authorities in Germany, including most notably the banking regulator (BaFIN). Following wide disagreements, EBA included the convertible instruments in the definition of capital, effectively introducing a distinction between the treatment of publicly- and privately-held capital instruments.

For the moment, the CRD IV-CRR proposal leaves some areas regarding the definition of qualifying instruments ambiguous. For example, it is not entirely clear whether the EBA will have the mandate to develop definitions for all or only a subset of the qualifying instruments. The European Parliament's compromise of May 2012 requires the EBA to have a say on a series of broad concepts, including most notably what 'first-loss absorbing equity' may mean. However, the Council's compromise appears to do the opposite, leaving the definition and monitoring of qualifying instruments to national authorities.

To avoid increasing the discretion between competent authorities, we argue that EBA should be much more than a bookkeeper of definitions or an issuer of non-binding guidelines. It should be armed with adequate powers to reach its primary aims of safeguarding the stability of the EU's banking system, ensuring transparency and protecting consumers' rights. The current proposal allows EBA to produce a list on the forms of instruments qualifying as common equity Tier 1 by January 2013.[4] To avoid similar challenges, EBA should be given the ultimate responsibility to update the list regularly to account for changing conditions. Moreover, similar lists should also be constructed for other forms of regulatory capital, i.e. additional Tier-1 and Tier-2. Most crucially, however, the list should not be published as a general guidance and should be binding for all member states.

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More specifically, EBA should be required to publish and maintain 'regulatory technical standards' on the qualifying instruments, which should be implemented through an EU-wide regulation (or part thereof), effectively reducing the flexibility granted to certain individual member states.

Moving beyond the definition of regulatory capital, the EU rules envisage incremental strengthening of the minimum requirements. For the common equity Tier 1 ratio, the minimum would start at 3.5% of risk-weighted assets in 2013, raised to 4.0% in 2014 and 4.5% in 2015 and onwards. Likewise, minimum Tier 1 capital requirements would commence at 4.5% in 2013, increasingly incrementally to 5.5% in 2014 and 6.0% starting with 2015 and onwards. Total capital requirements will remain at 8.0% for the entire period.[5]

A central issue behind the increase of quality and quantity of capital is the extent to which the imposed capital requirements are a real cost either to banks or to the society generally. It is often claimed, mainly by the banking industry, that imposing higher capital requirements would lead to a rise in the costs of banking and financial intermediation services, lower bank lending, and lower rates of return on equity and hence returns to shareholders.

Research shows that large banks will be able to meet the stricter requirements without significant pains, in many cases simply by retaining their earnings (Ötker-Robe & Pazarbaşıoğlu, 2010). BCBS's own impact assessments also confirm that the impact of the reinforced capital and liquidity requirements would have a very limited impact on growth (BCBS, 2010a; b).

The response of the EU's top banks to EBA's September 2011 capital exercise, which calls for a minimum capital requirement of 9% core Tier 1 capital ratio by June 2012, could prove to be a litmus test on whether tougher requirements lead to deleveraging. EBA's own assessment of the plans submitted by the banks reveals that

[4] Under the CRD IV proposal, EBA is required to publish a list of the "forms of capital instruments in each member state that qualify as Common Equity Tier 1 instruments" (CRR, Art. 25(4)).

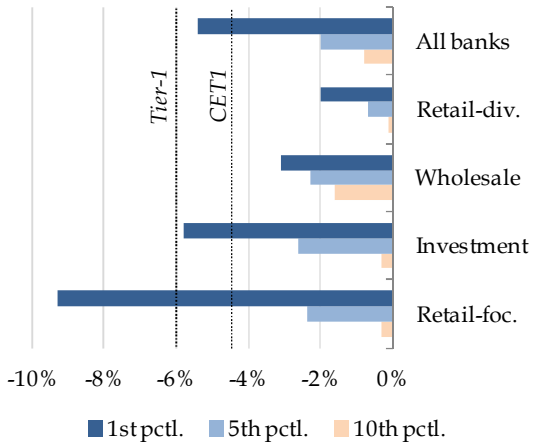
[5] The competent authorities are allowed to set limits that are closer to the post-2015 minimum restrictions within the transition period (CRR, Art. 448).

deleveraging would be very limited (EBA, 2012). However, the IMF's April 2012 Global Financial Stability Report warns that the actual shedding of assets may be larger than foreseen by EBA due to broader range of assumptions on structural and cyclical factors (IMF, 2012). Whatever the ultimate impact of stronger capital requirements may be, both analyses find that most of the deleveraging will involve asset sales and not lower issuance of credit.

One question is: What is the appropriate level of capital?

Recent evidence provided in Ayadi et al. (2012) and the calibration of regulatory minimum capital requirements provided in BCBS (2010d) show that the minimum common equity Tier 1 ratio of 4.5% is a reasonable starting point but not necessarily high enough to prevent widespread failures during downturns and in the more interconnected bank business models.

Figure 1. Return on RWA (1st percentile estimates)



Notes: The graph shows the Harrell-Davis lower percentile estimates for the distribution of returns on risk-weighted assets (RoRWA), representing the worst losses that banks would face in rare events. The estimates are drawn from the entire sample years and banks. Loss estimates for the 10th percentile correspond to losses that would materialize in a once-in-a-decade bad event, as opposed to losses in a once-in-20-years (5th percentile) and once-in-a-century events.

Source: Ayadi et al. (2012).

Figure 1 shows that despite a substantial variation across business models, many banks would suffer greater risk-adjusted losses than 4.5%. For example, a once-in-a-century stress event would lead to risk-adjusted losses of 5.4% on average, exceeding the minimum common equity Tier 1 (CET1) requirement of 4.5% and getting close to the minimum Tier 1 requirement of 6%. Moreover, the suggested requirements are unlikely to be adequate for all business models of EU banks. Thus, the proposed requirement is likely to be too lenient and substantially weaker than the historical losses suffered in recent years, or the failure likelihoods envisioned under the IRB approach.

We argue for a more substantial harmonization and strengthening of capital requirements.

We argue for a more substantial harmonization and increasing of minimum capital requirements as a major tool to achieve both micro- and macro-prudential aims. Our recommendation is based in part on the proposition that many of the concerns about raising equity capital requirements are unfounded when the banks' business models as well as systemic and long-term perspectives are considered.

Risk-weighted assets

Starting with Basel II, the minimum capital requirements have been risk-sensitive, implying that a bank would have to hold more capital the greater its risk exposures.[6] Provided that they are measured correctly, the average risk weight, i.e. the ratio of RWA-to-total-assets, should ideally be a good indicator of its own portfolio risk if it reflects the true risk profile of the bank's balance and off-balance sheet. However, there is concern that regulatory arbitrage and politically driven policies have called into question the appropriateness of risk-sensitive regulations.

The findings in Ayadi et al. (2011 and 2012) suggest that regulatory arbitrage could be utilized extensively, especially by investment banks that are more disposed and inclined to use the sophisticated instruments to shed the risks off their

[6] Contrasting recent calls, there is good reason to make capital requirements risk-sensitive. Indeed, faced with purely linear (i.e. risk-insensitive) capital requirements, banks may shift their portfolios towards riskier assets, offsetting their losses from higher capital levels by increasing their portfolio risks (Kahane, 1977; Koehn & Santomero, 1980; Kim & Santomero, 1988; Rochet, 1992). Empirical studies have confirmed that fixed capital requirements may increase risks, although the findings are far from unanimous, conditional on the size and the adequate capitalization of the bank (Furlong & Keeley, 1989; Gennotte & Pyle, 1991; Calem & Rob, 1999).

balance sheets. More specifically, the evidence shows that the risk-weighted asset measure is a poor indicator of underlying risks. In particular, average risk-weights are uncorrelated or even negatively correlated with default risks, earnings volatility and capital ratios. These findings alone imply that the risk-sensitive approach may be seriously biased and possibly underestimate the appropriate level of capital to be held.

> ***The evidence shows that the risk-weighted asset measure is a poor indicator of underlying risks.***

Other studies also suggest that regulatory arbitrage through RWA-optimization in the banking sector may be a serious threat (Acharya et al., 2010; Das & Sy, 2012). Many observers have also noted that the simplistic 'single risk factor model' underlining the IRB approach allows banks substantial freedom in minimizing their RWA to reduce the required capital charges (Calem & LaCour-Little, 2004; Blundell-Wignall & Atkinson, 2010). More generally, banks may use the risk-sensitive requirements for their own benefit to 'optimize capital' in a number of ways.[7]

> ***Banks may use the risk-sensitive requirements for their own benefit to 'optimize capital'.***

The ability of larger banks to calculate their own risk charges through the internal rating-based (IRB) approach is most likely the principle reason behind the misalignment of the regulatory risk measures. Undoubtedly, providing flexibility in measuring regulatory capital, which represents a true cost for banks, is a highly accommodative approach introduced under the Basel II framework. Banks have incentives to operate with minimum capital to satisfy the shareholders' race for value creation, which in practice overlooks any micro-prudential or long-term stability considerations (Ayadi, 2012). Moreover, supervisors often lack the necessary resources to verify the models adequately. Regulators have also contributed to ill-designed policies for political reasons. The risk weights used under the standardized approach, the alternative to the internal ratings (IRB) approach, have also been challenged on this account.

In particular, the risk weights show a highly preferential treatment of real estate and sovereign exposures.[8] They have also not paid sufficient attention to off-balance sheet risk exposures, most notably through securitization transactions.[9] Much like the potential loopholes in the IRB approach, these practices guide banks to allocate financial resources without paying due attention to the real risk profile. Most of these concerns have not been addressed under the CRD IV-CRR proposal; in particular, the zero-risk weighting of EU sovereign debt remains to be applicable.

Amendments put forward by the European Parliament's Committee on Economic and Monetary Affairs (ECON) has sought to address these concerns by instigating a potential re-adjustment of the risk-weights.[10] Nevertheless, it is

[7] In his seminal article, Jones (2000) discussed several forms of "cosmetic" adjustments that banks can undertake to reduce risk weights, including the concentration of assets in highest risk classes for a given risk weight, various forms of credit enhancements, remote-origination and structured transactions.

[8] Fundamental misalignment of the risk weights continues to hold in the treatment of sovereign debt and other exposures such as real estate. The CRD IV-CRR proposal continues to assign a zero-weight to all exposures to EU member states' central governments and central banks that are denominated and funded in the domestic currencies, notwithstanding the credit ratings for the relevant securities. More crucially, the standardized zero-weight is available as a default option even for institutions using the IRB approach (i.e. "permanent partial use"), effectively providing a flexibility that is otherwise not generally available in other exposure classes.

[9] Under the CRD IV-CRR proposal, only the risk-weights for exposures to securitized assets are increased. Rules on exposures to securitisation transactions were tightened under an earlier amendment (CRD II), requiring originating banks to retain a "net economic interest" by holding on to at least 5% of the nominal value of the securitized tranches sold or transferred. Although some suggest a further tightening of the "skin in the game" rules, it should not be forgotten that issuers may hedge the corresponding risks from retained parts and may thus offload the own risks from a higher retention rate (Dewatripont et al., 2010).

[10] The amendment requires the Commission to "submit a to the European Parliament and the Council proposing options to adjust that risk weight accordingly as soon as possible, while taking into account potentially destabilising effects of tabling such proposals during periods of market stress" (Amendment for a draft

uncertain whether the review process will be adopted in the final legislation.

The CRD IV-CRR proposal also continues to treat retail and real estate exposures in a preferential manner. In particular, exposures to natural persons or small- and medium-sized enterprises (SMEs) continue to receive lower risk-weights than unrated corporate exposures.[11] In addition, secured mortgage exposures on real estate are awarded a lower rating than higher-rated corporate exposures.[12] It is likely that the risk weights will even be further reduced in the ultimate legislation, leading to a greater divergence between the risk weights and the actual underlying risks.[13]

The heavy reliance on external credit assessment institutions (ECAIs) as a basis for determining the risk weights under the standardized approach is yet another reason for concern on the reliability of the risk weights. By construction, the use of external credit ratings delivers partial risk sensitivity because not all exposures are rated and ratings do not necessarily reflect underlying risk profiles. Unrated corporate exposures, for example, face the same risk charges as in the Basel I Accord. Therefore there is a strong expectation that banks with highly risky unrated exposures would be better off to use the standardized approach. The perverse incentives could have been overcome by enhancing the incentives to broaden the range of rated products. However, the recent performance of credit rating agencies and a general call to reduce reliance on external ratings make such a solution inapplicable.

The CRD IV-CRR proposal continues to rely on credit ratings with some minor changes. Among the amendments, new disclosure requirements for ECAIs are introduced, also contained in the Credit Rating Agencies Regulation (Regulation (EC) No. 1060/2009). Under these requirements, the ECAIs are to publish their procedures, methodologies, assumptions and key issues relating to the loss and cash-flow analysis. In addition, credit institutions are obliged to demonstrate due diligence in their securitization position, in that they should have a comprehensive and thorough understanding of the risks and not rely on the ECAI ratings before validating the underlying assumptions, models and methodology.[14] Apart from these relatively minor changes, however, the EU rules do not contain any direct attempt to reduce the reliance on ratings by credit institutions using the standardized approach or to validate the underlying methodology and assumptions.[15]

report, 16 April 2012, Recital 69b). The Council under the Danish presidency has not put forward comparable elements as of the writing of this report.

[11] The CRD IV-CRR proposal assigns a risk-weight of 75% for all retail exposures to natural persons or SMEs, provided that the total amount owed does not exceed €1 million (CRR, Art. 118). Meanwhile, unrated corporate exposures continue to receive a risk-weight of 100%. One argument for lower risk-weights on retail loans would be the ability of banks to mitigate their risks. Although the proposal requires the retail exposures to be adequately diversified (CRR, Art. 218(b)), there is no attempt to define what that desired level might be. This omission is unfortunate as one of the key lessons learnt from the subprime crisis (and earlier crises) was the need for heightened monitoring of diversification and the resulting systemic risks posed on the entire financial system (Hellwig, 2009).

[12] Under the CRD IV-CRR proposal, residential property exposures that are "fully and completely secured by mortgages on residential property which is or shall be occupied" are assigned a risk-weight of 35% (CRR, Art. 120). The secured exposures to commercial real estate are assigned a higher, 50% risk weight (CRR, Art. 121). In comparison, A-rated corporate exposures (corresponding to credit quality step 2, or A+/A/A- in Standard & Poor's terminology) are assigned a risk-weight of 50% (CRR, Art. 117).

[13] Under the compromise adopted by the European Parliament's Committee on Economic and Monetary Affairs (ECON) on 14 May 2012, the risk weights for SME exposures were further dropped from the original proposed amount of 75% to 50%, while the total allowed exposure was expanded to €2 million.

[14] If competent authorities have evidence of any failure to understand the underlying risks by a credit institution, they are required to impose a risk weight of no less than 250% (and less than 1,250%) on the relevant securitized product.

[15] Under recently proposed technical standards to supplement the Credit Rating Agencies Regulation (Regulation (EC) No. 1060/2009), credit rating agencies are required to submit to ESMA information regarding policies and information on the development, validation and review of their rating methodologies as well as the disclosure of the credit methodologies and key assumptions. For more details, see Article 16 (and references therein) of ESMA's Final Report on *Regulatory technical standards on the information for registration and certification of credit rating agencies*, 22 December 2011 (http://www.esma.europa.eu/system/files/2011_463.pdf).

We argue for a stricter requirement for due diligence in the use of external ratings to cover a broader range of exposure classes. In that sense, the CRD IV-CRR proposal can require a credit institution to use ECAI credit assessments provided that it can demonstrate that it took prior due diligence before investing to validate the relevant assumptions and to understand the underlying methodology and assumptions regarding the external ratings. In addition, the Regulation can enhance the Pillar 3 disclosure for investment decisions by making more detailed disclosure of the use of standardized approach. This can also provide an incentive for credit institutions to increase their use of internal ratings. More specifically, credit institutions should be required to identify the proportion of assets under each exposure class for which external ratings by ECAIs were used as a basis for investment decisions. For institutions that are authorized to make partial use of the standardized approach, additional disclosure requirements on the risk exposures should also be made.

> ***We argue for a stricter requirement for due diligence in the use of external ratings…***

If implemented correctly, the call for stricter requirement for due diligence should increase the costs of using the standardized approach, effectively giving banks incentives to develop their own models. However, as seen above, the IRB approach has attracted voluminous criticism of its own. Thus, we call for a more coordinated and stricter validation and monitoring of the internal risk models. It is only through a better alignment with underlying risks that the risk weights can become a valuable instrument to regulate banks. The only way to achieve better alignment is if the internal models are transparent, well-defined, subject to public monitoring as well as validated by supervisors.

> ***…[and] a more coordinated and stricter validation and monitoring of the internal risk models.***

To achieve these ends, banks should respond to a series of hypothetical benchmark portfolios with varying risk levels that are provided by regulators, reporting various risk model parameters, including loss-given default, probability of default and the resulting risk-weights for various asset classes. The reporting would be accomplished both for individual exposure classes and at the aggregate level for the entire portfolio.[16] Provided that the chosen benchmarks are adequately sophisticated, regulators will then be able to verify the adequacy and coherence of the internal models used by individual banks, which would feed into the regular supervisory review of the internal risk systems. Moreover, the results from the benchmarking exercise may also help test the validity of the weight assumptions under the standardized approach. Lastly, the public disclosure of the results (at least in a summary form) would also supplement market discipline by making risk preferences more transparent.

Several key principles need to be considered in the design of the proposed measures. In particular, the internal model benchmarking exercises should:

- Be regularly updated, allowing external scrutiny;
- Be unannounced or should not allow banks a long preparation time;
- Distinguish between business models and account for likely model transitions;
- Provide banks with a number of hypothetical portfolios to avoid strategic reactions;
- Be linked to the supervisory review process, calling for add-ons if the internal models do not assess risks adequately; and
- Be led and coordinated by the EBA in close collaboration with the ESRB, possibly as part of stress testing exercises.

One of the key challenges standing in the way of introducing the proposed benchmark exercise, however, is the potential administrative costs that it would impose on both the regulators and the banks. Leaving aside the intricacies of constructing appropriate benchmarks for different business models, the exercise may prove demanding and time-consuming, especially if regular on-site visits are required for verification. A cost-benefit analysis of the benchmarking exercise is worth pursuing. In

[16] A similar approach has been proposed by Vikram Pundit, the CEO of Citibank, and by Jaime Caurana, General Manager of the Bank for International Settlements (BIS). For more details, see "Apples v apples: A new way to measure risk" by Vikram Pundit, *Financial Times*, 10 January 2012 and "The need for effective international collaboration in times of financial stress," speech by Jaime Caruana, General Manager of the BIS, Berlin, 20 January 2012.

Europe, the EBA can start with a pilot sample of banks to which the stress tests have been applied.

In addition to the benchmarking exercise, banks relying on the IRB approach can be required to publicly disclose the risk-weighted assets and capital charges that would be applicable if they were to use the standardized approach. Although this supplementary approach may suffer from the arbitrage opportunities mentioned above, the distinction between the actual and benchmark results would nevertheless provide a rough proxy for the amount of capital 'saved' for the banks as well as the inherent riskiness of the model.

Lastly, the regulators should not use the risk weights as a political tool. Although doing so may put fiscal pressures on some of the periphery countries, such as Greece, Italy, Portugal and Spain, the gradual removal of the 'zero-risk weighting' of sovereign debt and the harmonization with the other asset classes are necessary.[17] Similarly, the unjustified preferential treatment of other exposures, such as real estate loans and SME credit, should be removed to bring the risk weights in line with the underlying risks.

> ***The regulators should not use the risk-weights as a political tool.***

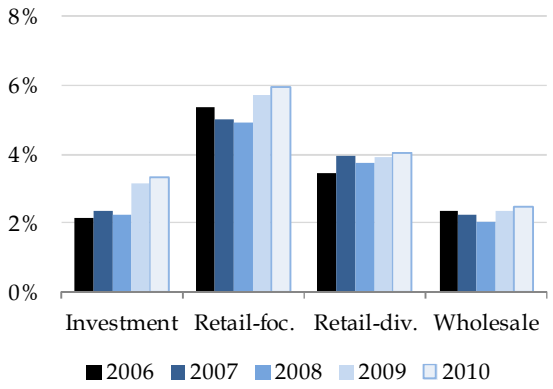
Overall, the EU proposed rules fell short in addressing the fundamental flaws underlying the use of the RWA and subsequently the calculations of the minimum capital requirements, considered as the cornerstone of banking regulation.

Leverage ratio

One of the key features leading up to the crisis has been the excessive build-up of leverage in the banking sectors of many advanced countries, including the EU member states. As is the case for non-financial firms, leverage is used to expand a firm's assets through debt and making the most of existing capital. Excessive leverage is threatening because even a small downward perturbation in asset prices can wipe off an institution's capital and lead to insolvency. Moreover, heavily leveraged banks tend to rely on less stable forms of short-term debt to match the volatility of the valuation of their assets and minimizing their 'surplus capital capacity' (Adrian & Shin, 2010b). When economic conditions worsen, the leveraged institutions may fail to roll-over their debt or raise additional capital, inducing them to de-leverage by selling off assets. When the share of leveraged firms is relatively high, these conditions lead to a sudden drying up market liquidity, fire sales and further drops in asset prices (Geanakoplos, 2010; Acharya & Viswanathan, 2011).

Faced with risk-sensitive regulatory requirements, many banks have found ways to become increasingly leveraged, leading to increased micro- and macro-prudential risks. The results of the study show substantial differences in leverage across different business models (Figure 2).

Figure 2. Leverage ratios across business models



Notes: The leverage ratio is defined as Tangible Common Equity/(Total Assets - Intangible Assets), which is narrower than the CRD IV or Basel III definition based on Tier 1 capital. The model selection and clustering procedures used to allocate banks into the different business models are described in Ayadi et al., (2012).

Source: Ayadi et al. (2012).

The smaller and focused retail banks, for which customer loans and customer are clearly the main activities, have also the highest leverage ratio (implying the lowest gearing ratio). In turn, wholesale banks, for which inter-bank liabilities account for approximately a quarter of total activities, have the lowest leverage ratio. This finding most likely reflects the fact that the liquidity risks are not adequately factored in the

[17] At the moment, there is little motivation to introduce an amendment of the "zero-risk weighting" of the EU sovereign debt. The draft report of the European Parliament's Economics and Monetary Affairs of 16 December 2011 Committee included an amendment to introduce a review of the rule by the European Commission, "taking into account potentially destabilizing effects of tabling such proposals during periods of stress". The Danish Presidency compromise did not include such a revision or amend the rule.

current regulations. Albeit improving figures in recent years, the investment-oriented banks also have relatively low leverage ratios, possibly due to their characteristically high derivative activities, which can be used to reduce risk-weights. Lastly, the diversified retail banks, which are in between the three categories, maintain moderate levels of leverage, probably since their underlying model of extending customer loans does not allow them to grow as extensively as other banks.

To the extent that these transactions are 'cosmetic', a leverage ratio may above all put a strict limit on the total amount of risks. The requirement could also reinforce the regulator's hand to sanction the banks by ensuring that the banks bear a larger proportion of the risks themselves (Blum, 2008).

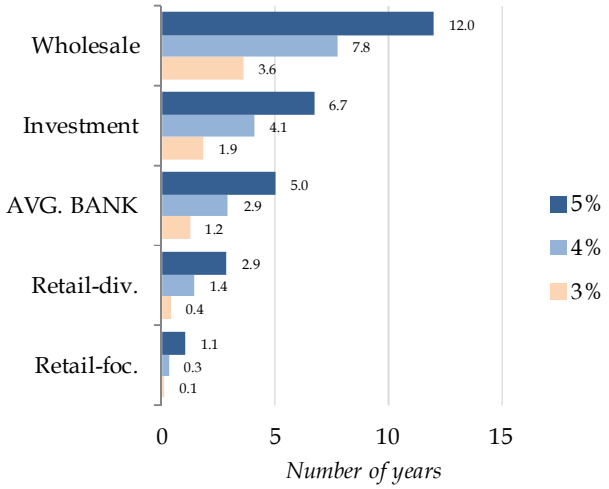
Many banks have found ways to become increasingly leveraged, leading to increased micro- and macro-prudential risks.

The leverage ratio is a useful tool to monitor and constrain the excessive asset growth. From an institutional perspective, it can be used to assess adequacy of capital in relation with the risk-sensitive requirements and relative to the bank's peers following the same business model. Perhaps more importantly, however, it can address macro-prudential concerns by restraining the self-reinforcing boom-bust dynamics of leverage cycles.

The Basel III framework introduced a new leverage ratio in an attempt to constrain the build up and to reinforce the existing risk-based capital requirements as a backstop measure. The proposed measure is defined as an institution's Tier 1 capital divided by total exposures reported as an arithmetic mean of monthly averages over a quarter.

Although a specific leverage ratio is not specified, the proposal mandates EBA to determine by October 2016 whether a 3% minimum leverage ratio is appropriate. Many banks have already voiced concern that such a requirement would be too costly and could lead to substantial deleveraging. As is the case for capital requirements, however, it appears that the suggested requirement can be met by most banks simply by retaining profits for as few as a couple of years.

Figure 3. Years of profit retention needed to meet alternative leverage ratio requirements



Notes: Calculations are based on total shortfalls and profits for each group, averaged over the years 2006 to 2010. The leverage ratio is defined as Tangible Common Equity / (Total assets - Intangible Assets), which is narrower than the CRD IV or Basel III definition based on Tier 1 capital. The model selection and clustering procedures used to allocate banks into the different business models are described in Ayadi et al., (2012).

More specifically, Figure 3 depicts the costs of alternative leverage requirements assuming that the needed capital will be raised by retaining profits. Although based on stricter definitions than the CRD IV-CRR proposal, most banks can meet a 3% minimum leverage ratio requirement by retaining profits for less than a single year. This is particularly the case for the two retail-oriented models, which need one and four month's worth of profits to satisfy the requirements. In turn, investment and wholesale banks will need to retain profits of up to two and four years on average, respectively. On average, the suggested requirement can be met by all banks in the sample by retaining profits of just over one year.

Figure 3 also highlights that tougher requirements can also be met by withholding profits for several years. For example, a leverage ratio of 4% can be met by withholding approximately three years of profits for an average bank in our sample. While almost all retail banks can satisfy tougher requirements by retaining two years of profits, wholesale banks will need on average 8 years of profit retention, owing both to their high leverage ratios and low profitability. Investment banks remain in between the two extremes. The figures also show that the costs of even a tougher 5%

minimum requirement would be substantial, implying an average bank to withhold profits for five years.

Another key issue relating to the required minimums is the way that calculations are made. In particular, the potential impact of netting derivatives exposures could be substantial. This is particularly the case for investment banks, where derivative transactions represent a significant proportion of the balance sheets. For example, in the past few years, the derivative exposures have fluctuated between one-third and half of Deutsche Bank's total activities. However, in many cases, derivative transactions enter both as assets and liabilities, subject to various forms of netting. In Deutsche Bank's case, the netting arrangements that are applicable under the US GAAP rules effectively reduce the total assets of Deutsche Bank by one-quarter to one-third.[18] Similar netting arrangements may give rise to heterogeneity in the measurement of leverage ratio and undermine its effectiveness. A deeper look into such divergences may be warranted, at least in the form of a technical guidance from EBA.

As a second issue, and perhaps more crucially, the CRD IV-CRR proposal sets out a very long transitory period for introducing a leverage ratio. Institutions are required to disclose their leverage ratios, although no guidance is provided for a common definition. Aside from the disclosure requirement, the tool is introduced as an "additional feature that can be applied on individual institutions at the discretion of supervisory authorities," and "with a view to migrating to a binding requirement" only after 2018, (Recital 68). Indeed, the only commitment made in the proposal regarding the leverage ratio is that a binding requirement will not be tabled for a long time, if at all. Although the amendments tabled by the Parliament mandate the introduction of a binding requirement by 2017, there is concern that the original proposal will not be changed.

In addition, the current proposal leaves the details on the calculation methodology to be resolved by the EBA by October 2016, which could put the comparability of the disclosed figures in question.

Therefore, we *strongly* call for an amendment to introduce a binding commitment for a leverage ratio, along with a shorter timetable for the introduction of the calculation methodology.

> ***The only commitment made in the proposal regarding the leverage ratio is that a binding requirement will not be tabled for a long time, if at all.***

Lastly, an important question is the level of leverage ratio requirements. Our findings summarized above suggest that the 3% minimum requirement would be serious concern for the wholesale- and investment-oriented banks. Naturally, apart from the business models, the appropriateness of the requirements depends crucially on the definition of the leverage ratio. Thus, EBA should review whether the suggested requirements under the Basel III framework would be sufficient to constrain the relevant risks in the EU, paying close attention to the risks arising from and costs to different business models.

Counter-cyclical capital buffers

Many banks faced substantial losses during the financial crisis. As is clear from the protruded nature of the current crisis, these losses can lead to extensive retrenching of credit in an attempt to comply with the capital requirements, leading to a downturn in the real economy, with future feedbacks into the banking sector. In essence, the time invariant nature of capital requirements introduces pro-cyclicality by subjecting the banks to the same requirements throughout the business cycle.

> ***The time invariant nature of capital requirements introduces pro-cyclicality by subjecting the banks to the same requirements throughout the business cycle.***

Several studies highlight the business-cycle amplification effects of capital requirements and the subsequent 'capital crunches' (Bernanke & Lown, 1991; Peek & Rosengren, 1995; Kashyap & Stein, 2004; Repullo et al., 2009). In addition, Repullo & Salas (2011) warn that the procyclicality was further reinforced by the entry into force of Basel II through the calculation of risk-weights

[18] Depending on whether the derivatives are netted-out (as under US GAAP) or not (as under IFRS), Deutsche Bank's leverage ratios for the year 2008 would range between 3.6% and 1.0%, respectively. In later years, the distinction became smaller due to Deutsche Bank's takeover of the more retail-oriented Postbank.

and, in particular, the probability of default estimations. Counter-cyclical buffers would offset these effects, requiring banks to hold more capital in good times and allowing them to shrink their capital base in bad times. The capital buffers could also serve a more macro-prudential function in helping prevent the excessive build-up risks through explosive growth of credit.

Counter-cyclical capital buffers have been introduced under Basel III framework to ensure that banks build excess buffers that are above the regulatory minimum. The proposed Directive introduces two capital buffers beyond the minimum capital requirements to minimize the risk of violating the minimum capital requirements. First, a capital conservation buffer of 2.5% of the risk-weighted assets (RWA) is introduced. Institutions that fall below the buffer face constraints on distributing earnings; the restrictions are applied in an increasing manner so that the closer the capital ratio is to the minimum requirement the greater is the earnings conservation requirements. Second, a countercyclical capital buffer is used to expand the capital conservation range (up to 2.5% of RWA) in good times to build up an added form absorption capacity. As is the case for the conservation buffer the restrictions on earning distributions become more apparent as the capital ratios approach the minimum required amounts.

The main concern regarding the capital buffers relates to the method for setting the countercyclical buffer rate and the identification method to detect financial bubbles. Because of the macro-prudential nature of the task, this role must be granted to a macro-prudential authority, which has a broad system view on the accumulation of risk at national and regional levels. According to the proposed rules, each member state will designate an authority for setting a reference guide based on the deviation of credit-to-GDP ratio from its long-term trend. The buffer rate is to be revised quarterly from the reference guide and other variables, including possibly structural variables. The potential for the selection of distinct structural variables can lead to undue heterogeneity in the application of the buffers among the member states.

The proposed counter-cyclical buffers should target the build-up of financial risks, in the form of asset bubbles, and not necessarily other macroeconomic risks.

It is also not entirely clear why structural variables, such as GDP growth, would be related to growing risk in the banking sector.[19] The proposed counter-cyclical buffers should target the build-up of financial risks, in the form of asset bubbles, and not necessarily other macroeconomic risks. Lastly, there is little empirical backing on the selected methods and instruments for identifying financial bubbles. In particular, a detailed analysis by the IMF (2011b) reveals that the proposed capital-to-GDP gap is more likely than other measures to pick the wrong cycles (i.e. a 'Type II error') while failing to pick the right ones (i.e. a 'Type I error'). We therefore call for more targeted research in the selection of indicators before venturing into poorly-designed instruments, which would produce no value in detecting the accumulation of financial risks in the system and hence the future formation of financial bubbles.

Liquidity requirements

In various phases of the financial crisis in 2007-09, banks that relied extensively on short-term funding faced severe stresses due to the rapid reversal in the availability of global liquidity. In Europe, the risks were particularly acute. This was especially the case for the wholesale-oriented banks with substantial exposures, not only as a borrower but also as a lender, in the short-term debt, often raised in the interbank markets. For example, Royal Bank of Scotland (RBS), Dexia and Hypo Real, with substantial short-term wholesale funding exposures, suffered tremendously during the liquidity squeeze following the collapse of Lehman Brothers in September 2008. In all three cases, the banks had to be backed with extensive central bank liquidity and government support.

[19] Although GDP growth may not be the part of the indicator to identify the building up or bursting of bubbles, it may nevertheless have an indirect impact through other variables, most notably the selected indicator. Maintaining this possibility, Repullo & Salas (2011) show that the proposed measures may fail to remove the pro-cyclicality due to a statistically significant and negative correlation between credit-to-GDP gap and GDP growth.

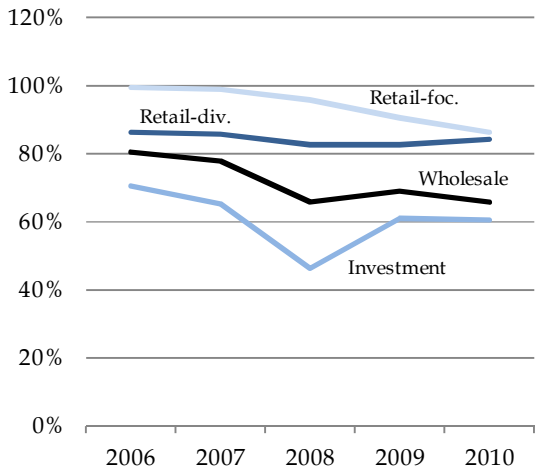
The risks arising from excessive reliance on short-term funding and the resulting maturity mismatches, roll-over risks, fire sales, and the ultimate drying up of liquidity have long been established in the literature. The ability of depositors to withdraw their money collectively exposes banks to potential self-fulfilling panics (Diamond & Dybvig, 1983). In response, many regulators in many countries have introduced deposit insurance schemes to mitigate such risks, effectively rebranding customer deposits as a safer form of funding. In the interbank and money markets, it has long been noticed that the uninsured and often uncollateralized mutual exposures can lead to a rapid amplification of contagion risks (Rochet & Tirole, 1996). More recently, the reinforcing nature of funding liquidity (i.e. the ability to obtain funding) and market liquidity (i.e. ability to sell assets) have been shown as the principle source of the sudden drying up of liquidity and flight to quality observed in early phases of the crisis (Brunnermeier, 2009; Brunnermeier & Pedersen, 2009).

> ***Although short-term funding allows banks to grow, it may also generate self-reinforcing liquidity shortages, as materialized during crisis.***

An interesting question is why short-term funding has become so predominant in recent years. The simple answer is that more stable funding sources, such as customer deposits, can help a bank grow up until a point. For many banks, expanding the balance sheets is only possible by relying more on short-term funding, implying greater liquidity risks. In addition, this type of funding also allows banks to manage their balance sheet sizes actively in a highly pro-cyclical manner (Adrian & Shin, 2008; 2010b). Although short-term funding allows banks to grow, it may also generate self-reinforcing liquidity shortages, as materialized during crisis.

Liquidity standards are among the key concepts introduced in the Basel III framework. BCBS proposed two measures to reinforce the resilience of banks to liquidity risks (BCBS, 2010c).

Figure 4. NSFR across business models



Notes: The assumptions for construction the net stable funding ratio (NSFR) are similar to those put forward in IMF (2011a), to the extent of data availability. See Ayadi et al. (forthcoming) for details on the assumptions. The sample of banks includes 74 of EU's biggest banks in terms of asset size. The model selection and clustering procedures used to allocate banks into the different business models are described in Ayadi et al., (2011).

Source: Ayadi et al. (2012).

The LCR requirement specifies that the value of qualifying liquid assets should be at least sufficient to cover anticipated net outflows during 30 days under stress conditions. Banks should meet these standards continuously and hold unencumbered (i.e. non-pledged)[20] liquid assets to serve as a buffer against severe liquidity outflows. Under Basel III parlance, high quality liquid unencumbered assets should "be easily and immediately converted into cash at little or no loss of value" even in times of stress (BCBS, 2010c, p. 5). Net total outflows, on the other hand, are comprised of total outflows, which include less stable funding sources such as potential draw-downs on committed credit or liquidity facilities, minus potential inflows, such planned inflows from performing loans.

The second measure, the Net Stable Funding Ratio (NSFR), considers a one-year horizon to ensure

[20] A review by UK Financial Services Authority revealed that RBS had a LCR of between 18% and 32% at the end of August 2008. The shortage of high-quality unencumbered liquid assets at the same date was estimated to be between £125bn and £166bn. For more details, see FSA (2011), *The failure of the Royal Bank of Scotland*, Financial Services Authority Board Report, December 2011 (http://www.fsa.gov.uk/library/other_publications/miscellaneous/2011/rbs.shtml).

that the (on- and off-balance sheet) maturity mismatches between an institution's assets and liabilities are not too excessive. Although the CRD IV contains few details, the standard developed by BCBS requires that the amount of available stable funding sources must be at least as much as the required stable funding (BCBS, 2010, p. 25).[21]

The evolution of the available stable funding sources as a share of required funding for the top EU banks is depicted in Figure 3. Retail banks clearly have more stable funding sources, due to their heavy reliance on customer deposits. In turn, wholesale and especially investment banks are exceptionally illiquid, explained by their reliance on trading assets and derivative transactions, respectively. With the clear exception of the universal banks, all business models faced worsening liquidity conditions during the crisis, due largely to absorbed losses. Interestingly, no single model satisfies the 100% funding requirement on average, as proposed under Basel III.

A common weakness is that the introduced liquidity measures continue to treat EU sovereign exposures as highly liquid.

A common weakness is that the introduced liquidity measures continue to treat EU sovereign exposures as highly liquid. Under the CRD IV-CRR proposal, exposures to transferable claims issued or explicitly backed by member states are deemed highly liquid, without looking at the quality and the actual liquidity conditions for those assets.[22] Under the general criterion proposed under CRD IV-CRR, the lower trading volumes, credit ratings, as well as higher bid/ask spreads applicable to certain sovereign bonds would qualify them as being illiquid. As in the case of zero risk-weighting of EU sovereign debt, the preferential treatment afforded to sovereign debt could be troublesome and undermine the timely identification of liquidity risks, especially for banks with high public sector exposures.[23]

Second, the proposed liquidity measures may have an important impact on conduct of monetary policy. In particular, LCR gives a preferential treatment to central bank excess reserves and liquidity.[24] These treatments in turn are likely to enhance the role of the central banks as an intermediary in the provision of liquidity even in normal times, crowding-out the wholesale funding markets, undermining the incentives of market participants to monitor the borrowing banks, and making the exit from current liquidity support measures more difficult. Moreover, if the definition of liquid assets under the LCR fails to overlap with the criteria for central bank liquidity eligibility, banks may engage in a regulatory arbitrage by pledging more risky assets as collateral at the central bank and keeping the more liquid ones unencumbered.[25] Therefore, the design of the

[21] More specifically, available stable funding sources include capital and reserves, customer deposits and other liabilities with more than one-year maturities. Required stable funding includes assets that cannot be quickly sold off without substantial costs during adverse market conditions lasting up to one year.

[22] For third countries, the exposures can also be treated as being liquid to the extent that they are held to cover currency risks.

[23] Indeed, the proposed measures would have failed to pick the growing liquidity problems in Dexia (rebranded as Belfius in February 2012). Prior to 2011, the bank's exposures to marketable public debt instruments, mostly issued or backed by the Belgian, French, Greek, and Italian governments, accounted for approximately 20 to 25% of the bank's balance sheet. Due to a severe drop in the market prices of EU sovereign debt in 2011, these exposures heralded the market liquidity problems and necessitated an ultimate bail-out by Belgium, France and Luxembourg. Neither the LCR nor the NSFR (detailed under Basel III) would reveal the liquidity troubles early on since the exposures would be deemed as highly liquid, at least up until the point that they were pledged as collateral for obtaining central bank liquidity, which occurred in the second half of 2011.

[24] In particular, cash and deposits held at the central bank will be reported as being liquid assets under the CRD IV proposal (CRR, Art. 404(1)a). These exposures are also likely to qualify for the highest quality liquidity once the EBA issues its review on the detailed definitions. In addition, under Basel III, funding from the central bank in the form of secured repurchase agreement operations collateralized by less liquid assets also receive a more preferential treatment.

[25] Similar points are raised by Lorenzo Bini Smaghi, then a member of the Executive Board of the European Central Bank, at the International Banking Conference "Matching Stability and Performance: the Impact of New Regulations on Financial Intermediary Management", Milan, 29 September 2010. See http://www.ecb.int/press/key/date/2010/html/sp100929.en.html.

liquidity measures should consider their impact on monetary policy, especially through the 'risk-taking' channel (Borio & Zhu, 2008; Adrian & Shin, 2010a).

LCR fails to capture the broader liquidity risks and the proposal fails to commit to table a binding NSFR requirement.

Third, LCR fails to capture the broader liquidity risks due to a wealth of reasons. To a large extent, the assessment of the liquidity of various asset classes, which will be subject to a review by EBA to be conducted by end-2013, rely extensively on historical trade-based proxies, such as minimum traded volume and maximum bid/ask spread. Moreover, liquidity is by definition an endogenous concept; during a market tumble, assets once deemed liquid can quickly become illiquid due to concentration risks. Since the short-term liquidity concept has to distinguish more specific about asset classes, endogeneity creates the possibility that the LCR can be erroneous, not adequately highlighting risks due to static model assumptions.

Fourth, the CRD IV-CRR proposal fails to commit to table a binding NSFR requirement beyond a basic disclosure standard, much like the leverage ratio. Indeed, similar to the leverage ratio requirements, the proposal only makes a commitment *not* to table a binding NSFR requirement until 2018. NSFR is a broader concept and is less reliant on individual asset classes. For that reason, it is less likely to be incorrect. We thus argue that the long-term liquidity measure should be a part of the regulatory framework, precisely as foreseen under the Basel III framework. A more ambitious commitment for its adoption by 2015 is therefore essential.

Reporting and disclosure requirements

One of the key lessons from the 2011 CEPS study was that the transparency and public disclosure practices of different business models were by and large incomplete. Although some banks appear to report more information than others, there appears to be discrepancies, even for a given bank over time. Apart from a handful of general terms, such as total assets, a comparison across banks is rendered extremely hard due to a general lack of standards on the reported items. Comparable information on some of the most basic items, such as risk exposures and liquidity conditions, is not available in many cases. These incongruities are likely to grow as the reporting and regulatory requirements become more numbered over time, as foreseen in the CRD IV-CRR after the observation phases of various elements.

Comparable information on some of the most basic items is not available in many cases.

An additional issue is the public availability of quarterly reports. While in the US, quarterly individual disclosures of all licensed commercial banks (listed or unlisted) obtained from the Reports of Condition and Income ("Call Report") are made public in bulk[26], in the EU no such practice exists. These micro-data sets are extremely useful for researchers and investors that are attempting to assess and compare key variables relating to banks' structures, performances, stability, and profitability and most importantly to examine changing business models. These reports are required to be submitted by all regulated financial institutions and collected by the Federal Deposit Insurance Corporation (FDIC). Since 2005, the reporting has been done in the extensible business reporting language (XBRL), which is an open-source global standard for exchanging business information. In the EU, the supervisory reporting frameworks for financial reporting (FINREP) and common reporting (COREP) have been developed, currently based on non-binding guidelines and reporting, both based on XBRL.

The proposed Regulation can benefit from an amendment to clarify the various reporting frameworks, starting with a standardized set of items to be reported, under technical guidance from EBA. In addition, putting clear legal basis and deadlines for all credit institutions to start reporting using the COREP/FINREP frameworks and shift to the use of the XBRL-type reporting across the EU could also be beneficial. To that extent, the standardized set of items to report should be seen as a first step for a more harmonious reporting foreseen under the frameworks. Moreover, the quarterly balance

[26] See http://www.chicagofed.org/webpages/banking/financial_institution_reports/commercial_bank_data.cfm. A timelier updated site also exists at FFIEC Central Data Repository's Public Data Distribution site (PDD), https://cdr.ffiec.gov/public/.

sheet, income statement, and liquidity conditions on all banks, listed or unlisted, should be made available from a central public website, free of charge, much like in the US.

Conclusions

Implementing the international Basel III standards into EU law, the CRD IV-CRR proposal is certainly a game changer for many banks, regulators and market participants. However, an assessment reveals that the proposed rules are not as ambitious as they claim to be.

In particular, the proposal fails to make a commitment to introduce binding requirements on leverage ratio or the closely linked concept of net stable funding ratio (NSFR). The literature and recent evidence show that both tools can play a key role in mitigating systemic risks, restraining excessive growth and more generally the self-reinforcing dynamics of boom-bust cycles. Without a clear commitment, the regulators and legislators will miss an opportunity to address one of the important lessons learnt from the crisis, i.e. the lack of an EU-wide macro-prudential approach.

As a second line of criticism, the proposal, much like the Basel III framework, continues to rely excessively on the risk-sensitive approach. The present evidence and theoretical literature shows that the risk-weighted asset measure can only be a poor indicator of underlying risks that banks take. To the extent that the misalignment is caused by the freedom that banks enjoy in optimizing their capital, a more coordinated validation and monitoring of banks' internal risk models, possibly through a benchmarking exercise, is needed. Furthermore, the introduction of a binding leverage ratio will also reduce the reliance on risk-sensitive capital requirements.

Third, the European Banking Authority (EBA) should have a more important role than a bookkeeper for EU-wide definitions and guideline. If national authorities continue to practice undue discretionary powers or challenge EBA, the current weaknesses may persist or even worsen. This is particularly the case for key areas, such as the definition of instruments that are eligible for regulatory purposes, the definition of liquid assets, and so forth. The authority should be armed with adequate powers to reach its primary aim of safeguarding the stability of EU's banking system.

Fourth, and in a related manner, the politically-oriented provisions should be gradually removed. The criticism is particularly applicable for the zero-risk weighting of EU sovereign debt risks, which induces an optimistic view of credit and liquidity risks. Similarly, the highly preferential treatment of real estate exposures (or SME loans as suggested under some amending versions) can lead to an asset bubble in those areas, paving the way for the next crisis. Similarly, the regulators and legislators should not yield to excessive lobbying from the industry, which in most likelihood contributed to a less ambitious proposal.

Fifth, the proposal makes no attempt to substantially improve disclosure standards. Comparable information on some of the most basic bank-related items, such as risk exposures and liquidity conditions, is currently lacking. Disclosure standards are likely to improve a more detailed and accurate private monitoring, which is supposed to be a key aspect of the Pillar 3 requirements.

Lastly, our study (Ayadi et al., 2012) highlights the relevance of varying risks reflected by different business models. Most concretely, the wholesale- and investment-oriented banks in the EU appear to have the lowest leverage ratios among their peers, well below the 3% leverage ratio suggested under Basel III. As for the appropriate minimum capital requirements, both the focused retail- and wholesale-oriented models suffer from substantial tail shocks. Moreover, some of the policy initiatives suggested here, such as the benchmarking exercise, clearly highlight a need to a better understanding of the business models and their evolutions. For these reasons, more policy-oriented research and monitoring is necessary to better align the regulatory initiatives with the inherent risks of different models.

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Annex 1. Topics under Discussion in the 'Trialogue' over CRD IV-CRR

Policy area	CRD IV-CRR		
	European Commission	**European Parliament**	**European Council**
Capital requirements			
Capital buffers	Capital conservation buffer of up to 2.5% and countercyclical capital buffer of up to 2.5% (CRDIV Article 123 and 130).	Introduction of a systemic risk buffer on top of the capital conservation buffer and countercyclical capital buffer. The systemic risk buffer increases the capital requirement by 1 to 10% for both global and domestic systemic institutions (European Parliament compromises AK and AL on CRD IV).	Introduction of a systemic risk buffer on top of the capital conservation buffer and countercyclical capital buffer. National authorities can increase the requirement by up to 3% with a notification. Between 3 and up to 5% approval of the European Commission is required (Council compromise on CRD IV Article 124a).
Risk weighted assets	The risk-weights for SME exposures of 75% (CRR Article 118).	The risk-weights for SME exposures are dropped to 50% (European Parliament compromise on CRR Article 118).	The risk-weights for SME exposures remain 75% (Council compromise on CRR Article 118).
Large exposures to SMEs	Maximum single exposure to a SME of €1 million (CRR Article 118).	Maximum single exposure to a SME of €2 millions (European Parliament compromise on CRR Article 118).	Maximum single exposure to a SME remains €1 million (Council compromise on CRR Article 118).
Leverage ratio			
Threshold	Suggesting leverage ratio of 3% (CRR Article 482).	Possibly allowing for divergence in leverage ratio based on riskiness of business model. Suggesting leverage ratios between 1.5-5% (European Parliament compromise on CRR Article 482).	Suggesting leverage ratio of 3% (Council compromise on CRR Article 482)
Off-balance sheet exposures	Risk weight of 10% for 'low risk' exposures and 100% for other off-balance sheet exposures (CRR Article 416).	Introduction of lower weight for 'medium risk' off-balance sheet exposures 20-50% (European Parliament compromise on CRR Article 416).	Introduction of lower weight for 'medium risk' off-balance sheet exposures 20-50% (Council compromise on CRR Article 416).
Timetable	Disclosure from 2015 onwards. The ratio might mitigate into a binding leverage ratio from 2018 onwards (CRR Article 482).	Disclosure from 2015 onwards. The European Commission shall, adopt by July 2017 a delegated act on the introduction of a binding leverage ratio (European Parliament compromise on CRR Article 482).	Disclosure from 2015 onwards; The ratio might mitigate into a binding leverage ratio from 2018 onwards (Council compromise on CRR Article 482).

Policy area	CRD IV-CRR		
	European Commission	**European Parliament**	**European Council**
Liquidity coverage requirement (LCR)			
Timetable	Disclosure from 2015 onwards. Suggesting binding liquidity coverage ratio from 2018 onwards (CRR Article 481).	Disclosure from 2015 onwards. Suggesting binding liquidity coverage ratio from 2018 onwards (European Parliament compromise on CRR Article 481).	Disclosure from 2015 onwards. Suggesting binding liquidity coverage ratio from 2018 onwards (Council compromise on CRR Article 481).
Liquid assets	At least 60% of the liquid assets should be 'highly liquid' (CRR Article 405).	At least 40% of the liquid assets should be 'highly liquid' (European Parliament compromise on CRR Article 405).	No minimum for highly liquid assets (Council compromise on CRR Article 405).
Net Stable Funding Ratio (NSFR)			
Timetable	The European Commission will consider proposing a stable funding ratio after an observation and review period in 2018.	By 31 December 2016, the European Commission shall adopt a delegated act setting out the requirements for a Net Stable Funding Ratio.	The European Commission will consider proposing a stable funding ratio after an observation and review period in 2018.
Compensation		The variable payment of bank employees may not exceed the fixed pay (European Parliament compromise on CRDIV Article 90).	
Other		On shadow banking, securities- and repo lending as well as the top ten exposures to unregulated financial entities need to be disclosed. In addition, it proposes to maximise the exposures to unregulated financial entities to 25% or €150 million (European Parliament compromises on Articles 483 and 484).	

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Founded in Brussels in 1983, the Centre for European Policy Studies (CEPS) is widely recognised as the most experienced and authoritative think tank operating in the European Union today. CEPS acts as a leading forum for debate on EU affairs, distinguished by its strong in-house research capacity, complemented by an extensive network of partner institutes throughout the world.

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