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The financial valuation crisis

The inherent limits to taming unstable markets

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6 Fighting the financial cycle. Macroprudential policy, endogenous risks, and regulatory timidity

6.1 Introduction

The global financial crisis of 2007-9 was the materialization of an endogenous build-up of systemic risk in the years before. It demonstrated a key flaw in pre-crisis financial policy: by focusing on individual firms' stability, supervisors had missed the endogenous build-up of financial fragility. It exposed the assumption that micro-stability ensures systemic stability as a classic fallacy-of-composition mistake (Borio 2009; Warwick Commission 2009; Brunnermeier et al. 2009; Seabrooke and Tsingou 2010).

In response, policymakers turned to 'macroprudential ideas' for help. Macroprudential proponents argued that financial regulation should tackle destabilizing feedback loops head-on, whereby policies' implications for *systemic stability* should take precedence over those for individual firms. Countercyclical macroprudential policies would aim to mitigate the boom-bust nature of financial markets – increasing policy stringency when systemic risks build-up, while becoming more lenient if they turn into financial distress. In addition, structural macroprudential policies would aim to mitigate systemic risks that exist at any particular point in time, as a result of firms' common exposures or from them being systemically important (Financial Stability Board [FSB] et al. 2011). These policies would act as a crucial counterweight to financial market participants' inherent (if often unintended) tendencies towards creating systemic risk.

However, just like post-crisis reforms of firms' financial valuation routines (see previous chapters), macroprudential policy reforms have been limited. Far from aiming to fight credit and asset bubbles, macroprudential authorities merely aim to increase firms' resilience in the run-up to financial instability. The policy reforms are largely confined to bank capital requirements. To the extent we see macroprudential elements in other relevant domains – such as liquidity rules, margin requirements, and credit extension – they take the form of a-cyclical (time-invariant) backstops: limits on market participants' room for maneuver that do not vary over the cycle. The only explicitly countercyclical tool is the Countercyclical Capital Buffer – a variable buffer add-on. But supervisors remain in the dark under what circumstances they should activate it, given continued controversy over how to identify the build-up of systemic risks. Finally, it has been operationalized as an add-on to microprudential frameworks, but the procyclical elements in these frameworks have been only limitedly addressed.

What explains these limited reforms? International political economy (IPE)-scholars have presented macroprudential ideas' quick rise to popularity in high-level policy arenas as (tentative) evidence that of an ideational paradigm shift. Even if actual policy reforms would take some time to fully materialize, a fundamental policy shift was underway (cf. Baker 2013a; 2013b; Mackintosh 2014). If implemented reforms would fail to live up to the high hopes, this scholarship suggests *external factors* would be responsible; for example, self-interested lobbying of financial firms, or institutional inertia (cf. Baker 2013b; Underhill 2015).

This chapter argues that to understand the limited reforms, we must also look at factors *internal* to the macroprudential enterprise that hampered the materialization of an ambitious policy shift. These factors pertain to policymakers' inability to confidently identify the build-up of systemic risks, in combination with their inability to devise reliable policies to mitigate them. Both are the result of the *endogeneity* of systemic risk – paradoxically a core tenet of the macroprudential philosophy. As the financial system is reflexive, complex, and highly adaptable, supervisors face hard limits in their ability to signal and flag the build-up of systemic risk.

While supervisors can identify particular factors that historically accounted for future trouble, they face fundamental uncertainty as to its precise origin, timing, and manifestation. Identifying systemic risks will thus inevitably maintain a high degree of uncertainty and guesswork, hampering the design of a bold, countercyclical policy approach. Going further, macroprudential policy itself becomes endogenous to financial market functioning, with potential unintended harmful consequences. Any suggestion that the supervisor will prevent systemic risks from emerging risks sowing the seeds for future problems. And an ill-timed, aggressive intervention might trigger the stress that supervisors aim to prevent. If bold countercyclical actions merely replace one source of systemic risk for another, supervisors will shy away from getting their hands dirty.

In short, to understand why we see limited reforms it is crucial to open the black box of macroprudential policy and study its inner workings: even if the macroprudential framework is conceptually attractive, its implementation faces hard limits. The chapter empirically illustrates this argument by focusing on key implementation issues as they played out in the EU: the policy's objective, calibration, scope, and relation to other policy objectives (such as microprudential or competition policy considerations). On all these issues, we see that it is one thing to formulate what ideally should be done, but quite something else to translate that ideal into workable policies.

By focusing on the ‘time-dimension’ of systemic risk (the procyclicality problem), the chapter pays less attention to the so-called ‘cross-sectional’ (structural) dimension: risks lurking between financial actors at any point in time. However, this does not make the findings any less relevant, for three reasons. First, financial stability is not additive, meaning that even if we see progress on structural macroprudential policy this does not solve the boom-bust nature of financial markets. Second, by emphasizing that individual market participants face limits in grasping contagion dangers and/or benefit from obtaining a systemic importance, this aspect of macroprudential ideas closely matches onto pre-crisis worries about information asymmetries and moral hazard problems (Mügge 2013). While surely desirable, regulatory progress on such issues hardly qualifies as major policy shift. However, thirdly, structural macroprudential reforms also appear to be limited. For example, the problem of systemically important institutions has obviously not been solved by requiring additional capital buffers (Mackintosh 2014).

The chapter proceeds as follows. The next section briefly analyses why IPE-scholars expected a paradigm shift. Section 3 presents a yardstick to analyze reforms actually implemented, arguing that they fail to live up to the high hopes. Section 4 analyses in more detail the factors that have obstructed the implementation of an ambitious policy reform. Finally, section 5 contains a brief indication of possible policy implications of the chapter’s main findings.

6.2 The coming revolution in financial regulation

Political scientists have extensively studied the financial crisis’ (potential) implications for policy change (Moschella and Tsingou 2013a; Blyth 2013; Helleiner 2014). Scholars and policymakers alike argued that macroprudential ideas contained the ingredients for a fundamental policy overhaul (Borio 2009; Haldane 2009b; Lothian 2012; Baker 2013b; Mackintosh 2014). Writing in the immediate crisis aftermath, analysts acknowledged that it was too early to tell whether reforms would live up to the high expectations. Still, they pointed at three factors conducive to sweeping reforms: the crisis challenged the existing regulatory approach; alternative (macroprudential) policy ideas were available; and there was a high-level willingness to implement them (Baker 2013b).

6.2.1 Pre-crisis policy failure

First, the crisis appeared to challenge the core of the pre-crisis policy approach (Financial Services Authority [FSA] 2009b; Baker 2013a). Observers identified a fundamental flaw: it was predominantly focused on *individual institutions’* stability (micro-orientation), while neglecting a

systemic focus (macro-orientation) (Bank for International Settlements [BIS] 2008; Financial Stability Forum [FSF] 2009; International Monetary Fund [IMF] 2009). Regulators generally assumed financial stability threats would come from contagion effects resulting from an individual institution's failure (itself deemed a random, exogenous event). The policy approach was to require sufficient capital (equity financing) attuned to firm-specific risks: this would ensure firm solvency and, therefore, systemic stability (Brunnermeier et al. 2009). Believing that firms' self-interest and risk-management techniques would ensure firm solvency, policymakers also increasingly delegated regulatory compliance to firms themselves. The Basel II Capital Requirements Accord (2004) was an exponent of this approach, giving firms greater discretion in calculating their capital charges (Tsingou 2008).

The focus on individual institutions, however, clearly failed to prevent the build-up and materialization of systemic risk. The belief that individual stability ensures systemic stability was a fallacy of composition (Brunnermeier et al. 2009). Critics argued the micro-orientation was *part of the problem*: making individual institutions safe can destabilize the system. Regulatory reliance on financial firms' valuation practices reinforced procyclicality – self-reinforcing loops between individual behavior and systemic outcomes. State-of-the-art risk models extrapolated recent market trends into future estimates, encouraging firms to take on more risk in the upswing, while triggering collective sell-offs in the downturn (FSA 2009b). Firms' increased reliance on market prices for asset valuation also contributed to procyclicality, by more directly linking overall market developments to firms' measured profits and net worth (FSF and Committee on the Global Financial System [CGFS] 2009). As the seminal *Turner Review* put it (FSA 2009b: 22), such “market practices [...], while rational from the point of view of individual participants, increased the extent to which procyclicality was hard-wired into the system”. The micro-focus not merely *missed* but *contributed* to the build-up of systemic risk.

6.2.2 The availability of an alternative

Second, a plausible alternative to the *status quo ante* seemed available. Already before the crisis, experts at the influential Bank for International Settlements (BIS) playing a pioneering role in developing macroprudential ideas (Crockett 2000; Borio 2003; White 2004; Clement 2010). The crisis was the window of opportunity to generate widespread attention. While proponents of the pre-crisis approach had a hard time explaining the crisis – after all, how could so many self-interested actors get it so wrong? – the macroprudential perspective provided a clear diagnosis: the crisis was the result of endogenous, destabilizing feedback loops within the financial system

as well as between the financial system and the real economy (Borio 2009; Borio and Drehmann 2009).

Macroprudential proponents provided a convincing account of financial crises. Reflexive feedback loops between individual actors' *assessments* and subsequent *actions* (micro-level) and systemic *outcomes* (macro-level) are key (BIS 2008). In stylized form, the process operates as follows. During expansions, asset and collateral values rise, corporate and financial profits increase and defaults decline. Initially cautious actors face a choice between forgone profits and joining the herd (Crockett 2008). Their resulting actions – expand lending, increase leverage, taking on (increasingly short-term) debt to fund the credit – contribute to the expansion. A feedback loop sets in. This raises the fragility of the system even though it appears increasingly safe (Borio et al. 2012). At one point a relatively insignificant event can be the turning point (Gerding 2014). The process then operates in reverse, but much more abruptly, amplifying financial distress (Borio 2009). In sum, the crisis was not a random, exogenous event – it was the result of feedback loops endogenous to the financial system.

Key regulatory agencies were quick to publish reports containing many suggestions on how to translate macroprudential ideas into concrete policy measures (BIS 2008; FSF 2009; IMF 2009). Observers therefore argued that the macroprudential perspective contained the cure for pre-crisis regulatory flaws:

a whole range of proposals, which were previously out of reach, can now be placed on the table and seriously discussed. These include: counter-cyclical capital requirements; dynamic loan-loss provisioning; counter-cyclical liquidity requirements; administrative caps on aggregate lending; reserve requirements; limits on leverage in asset purchases; loan-to-value ratios for mortgages; loan-to-income ratios; minimum margins on secured lending; transaction taxes; constraints on currency mismatches; capital controls; and host-country regulation (Baker 2013b: 43).

Ultimately, the aim would be to design a policy framework that would prevent future credit bubbles, or at least ensure that those that do occur are significantly less damaging to the real economy (Yellen 2010).

What would a macroprudential paradigm shift consist of? The aim would be to design a policy framework that would prevent future credit bubbles, or at least ensure that those that do occur are significantly less damaging to the real economy (Yellen 2010). Observers hoped for hardwired countercyclicality: rules that automatically adjust in stringency when systemic risks are building up. This automaticity would be essential, as in booms supervisors frequently find it hard to use their discretionary powers to 'take the punchbowl away'. The macroprudential mind-set would

need to be applied to a broad set of regulations, to ensure the countercyclical mechanisms would have a strong effect. Next, it would be crucial to ensure that financial stability considerations would occupy a central position in overall financial policy and if necessary trump other policy goals (such as striving for an international level playing field). Finally, it would require a thorough revision of regulatory reliance on firms’ valuation and risk management approaches. Firms’ valuation and risk-management routines would have to be reregulated to ensure they would no longer contribute to procyclicality (see Table 6.1).

Table 6.1 The contours of a macroprudential paradigm shift

<i>Policy objective</i>	Fighting the financial cycle
<i>Rule-calibration</i>	Hardwired countercyclicality: rule-calibrations change quasi-automatically in response to the build-up of systemic risk
<i>Policy scope</i>	A broad remit: application of countercyclical instruments to a wide set of rules
<i>Place within wider regulatory framework</i>	Macroprudential policy considerations should be central in financial regulatory frameworks and override other regulatory objectives if required
<i>Relation to microprudential considerations</i>	Eliminating the procyclicality of microprudential components of regulatory frameworks

6.2.3 High-level willingness to implement macroprudential ideas

Finally, scholars identified high-level support for translating these ideas into actual policy. As extensively documented by Baker (2013a; 2013b), through various channels these new ideas travelled from a relatively small group of experts to a much broader policy community. Macroprudential proponents contributed to seminal reports – such as the *Turner Review* (FSA 2009b), the *Geneva Report* (Brunnermeier et al. 2009), and various reports published by the BIS, the FSF and the IMF. As many of them occupied key regulatory positions – for example, Claudio Borio at the BIS, Adair Turner as head of the FSA, Andrew Haldane at the Bank of England – these ideas quickly found their way to high-level political arenas. G20-leaders stressed the necessity of implementing macroprudential policies (G20 2009) and tasked leading international organizations – the BIS, the IMF, and the FSB – to push this agenda. In Europe, the influential *De Larosiere Report* argued that “[a] key lesson to be drawn from the crisis is the urgent need to upgrade macroprudential supervision in the EU for all financial activities” (High Level Group on Financial Supervision 2009: 44). There thus appeared to be broad support for a macroprudential policy shift.

The conditions seemed ideal for a fundamental policy overhaul. As policymakers' ambitions were followed-up by regulatory reforms, scholars tentatively concluded that a 'paradigm shift' was well underway (Lothian 2012; Baker 2013a, 2013b; Mackintosh 2014). They did acknowledge that a full transformation would take some time: deep reforms need not necessarily come overnight (Moschella and Tsingou 2013a). The policy's novelty implied it would take time for policymakers to gain practical experience. And reforms might be slowed down by self-interested actors – particularly financial firms – who favor not straying too far from the status quo ante. Still, a future transformation seemed likely, involving “incremental steps in the direction of an activist functioning macroprudential regulatory regime” (Baker 2013a: 430).

6.3 The paradigm shift that got stuck

6.3.1 EU's limited macroprudential reform

Much has changed since the onset of the crisis. The EU set up the European Systemic Risk Board (ESRB), tasked with monitoring systemic risks, issuing warnings and recommendations to national authorities, and contributing to policy development. Through Article 5 of the Single Supervisory Mechanism Framework Regulation, the European Central Bank (ECB) has some macroprudential competences for Euro-area member states' banking sectors. Member states have assigned macroprudential tasks to specific authorities – although the formal remit and the composition of different authorities vary (ESRB 2016a). The EU included explicit macroprudential instruments in banking legislation (Capital Requirements Directive [CRD] IV and Capital Requirements Regulation [CRR]) and member states have introduced additional instruments. Authorities undertook extensive research efforts and data gathering exercises to improve the monitoring and mitigation of systemic risks (see ESCB Heads of Research 2014). And policymakers modified microprudential frameworks (such as risk-sensitive capital requirements) to limit their procyclical effects.

Yet a more in-depth analysis reveals that reforms are quite limited when compared with the measures outlined in the previous section. Countercyclical elements by and large confined to bank capital requirements. In other relevant policy domains – liquidity rules, margin and haircut requirements, loan-loss provisioning rules, credit extension – there are no formal countercyclical rules yet (ESRB 2014a; ECB 2015b; Constancio 2016). Where they exist, macroprudential elements in these domains are a-cyclical (time-invariant) backstops: limits on firms' room for maneuver that do not vary over the cycle. Maximum loan-to-value ratios are one example. While such instruments can certainly limit unsustainable credit growth, they cannot effectively constrain

systemic risk under all circumstances, and they can have procyclical effects in the downturn (Domanski and Ng 2011).

Even in capital requirements, countercyclical elements are quite limited. The most important policy tool is the countercyclical capital buffer (CCB; Articles 130 and 135-140 of CRD IV) – adopted from the new Basel III accord – that national macroprudential authorities can activate in case systemic risks are building up (ESRB 2014b). EU law also allows the *microprudential* supervisor to increase sectoral risk-weights for banks' real estate exposures if deemed necessary to mitigate systemic risk (Article 124 and Article 164 of CRR; cf. EC 2016a: 7). Finally, the so-called flexibility package (Article 458 CRR) allows national authorities to deviate temporarily from EU-wide norms and introduce more stringent banking rules. Despite its name, however, it is consciously designed to be a last resort for national authorities, only to be used when all other options prove insufficient (EC 2016a). Far from occupying a central place, policymakers consigned macroprudential policy a peripheral role in the broader regulatory framework.

Macroprudential policy's core ambition is to increase financial firms' resilience. If countercyclical measures also lean against the financial cycle, this is a welcome side-effect, but not the prime goal. The CCB's stated objective is to increase firm resilience, not to restrain the boom (Borio 2014). Experts argue that this buffer's boom-restraining side-effects will be minimal: during boom times, capital is (perceived to be) abundant, so firms' lending practices will unlikely be significantly constrained (Constancio 2014). And it does not aim to boost credit growth during a bust, but rather to "prevent unnecessary constraints on the supply of credit" (Borio 2014: 34).

Under what circumstances instruments' stringency should be increased remains vague. While for the CCB there is a reference to a systemic risk indicator – the credit-to-gdp gap, measuring the deviation from the trend of the ratio of 'credit to the private sector' to 'a country's GDP' – macroprudential policymakers are not required to use it. EU rules stipulate that the indicator "should not give rise to an automatic buffer setting or bind the designated authority" (CRD IV; recital 82). Authorities have instead formulated longlists of variables that are potentially relevant in deciding when to activate the buffer (see for example Financial Policy Committee [FPC] 2016). While this surely improves the quality of systemic risk analysis, both supervisors and market participants are in the dark on the circumstances that will lead to the tool's activation. Effectively, policymakers have kicked the can down the road.

Finally, regulatory reforms to limit microprudential frameworks' procyclical effects seem limited. Reforms of financial firms' valuation practices constitute an adaptation of pre-crisis approaches

rather than a sweeping overhaul. The International Accounting Standards Board (IASB) – Europe’s de facto standard setter – has developed a new accounting standard for financial instruments (IFRS 9) that allows forward-looking loan-loss provisioning (ECB 2015a). Similarly, capital requirements now oblige banks to use models with a longer time-horizon and including ‘pessimistic’ loss-scenarios (EBA 2015a). But as these requirements continue to rely on firms’ risk models, they may still have significant procyclical effects (Interview 20161207b).

6.3.2 The implementation problem

Why these limited reforms? The widespread popularity of macroprudential ideas led many to believe that a straightforward alternative to the pre-crisis approach was readily available. If sweeping reforms would fail to materialize, scholars suggested *external* factors – such as private sector opposition, or institutional inertia – would be responsible (Baker 2013a; Underhill 2015). I argue, however, that to account for these limited reforms, we must also look at problems *internal* to the macroprudential enterprise. We must ‘open the black box’: the macroprudential ideas did not by themselves provide fool-proof regulatory solutions to the identified problems. It is one thing to argue for countercyclical policies; quite another one to actually design them. Policymakers had to develop ways of *identifying* and *mitigating* systemic risks. Yet these endeavors proved to be hampered by fundamental dilemmas, ultimately obstructing an ambitious policy shift.

The core of the implementation problem paradoxically is one of the main ideas of macroprudential thinking: the endogeneity of systemic risk. Three factors account for this. First, the financial system is *reflexive*: market participants’ *beliefs* about (inherently uncertain) future outcomes in the aggregate *shape* these outcomes. Financial markets have no firm anchor – the often-invoked fundamental values in the real economy – outside of market participants’ assessments. Put differently, there is no ‘external reality’ that market participants can rely on to know what will happen (Soros 2008; Bronk 2013). Second, the financial system is *adaptive*. It is constantly changing because of new products, institutions, technologies, actors and regulations – implying yesterday’s system is quite different from today’s or tomorrow’s. So while systemic risks are inherent to financial markets, their precise manifestation will change over time (Agur and Sharma 2013). Finally, the system is complex – meaning they are susceptible to unpredictable and non-linear transitions. Transgressing particular thresholds may set off feedback loops that makes the system spiral away from a seemingly stable ‘equilibrium’ and into the abyss (May et al. 2008). Lacking an anchor, financial markets are characterized by irregular boom-bust patterns (Keynes 1964 [1936]; Minsky 2008 [1986]).

Yet these insights pose two fundamental problems for an ambitious countercyclical macroprudential policy. First, it obstructs a straightforward measurement of systemic risk. Supervisors cannot ‘step out’ of the reflexivity dynamics and assess risk from an ‘external’ point-of-view. Instead, they must determine the build-up of fragility from within the system, and there is no obvious place to look. Systemic risk indicators based on market data are of only limited use, as these are *reflections* of current market sentiment. Given that the build-up of risk is the consequence of collective optimism (Minsky 2008 [1986]), market data will by definition fail as an early warning device. Supervisors thus have to look at historical trends and assess whether the current situation is sufficiently different to suggest systemic risks are building up.

But market reflexivity severely complicates assessing whether market trends are unsustainable. Changes in market participants’ expectations and the adjustment of their actions may quickly transform seemingly benign conditions into a collapse in market liquidity and asset values (Beinhocker 2013). And although instability is inherent to financial markets, the precise origin, manifestation, and severity changes over time. Market distress often results from innovation (financial or otherwise), which by definition makes historical comparisons difficult (Bronk 2013). While supervisors can identify factors that generally signal the build-up of risk, there will always be a significant degree of uncertainty and guesswork. Supervisors will have to fly by sight, rather than on auto-pilot.

Second, macroprudential policy itself becomes endogenous to financial market functioning, with potentially harmful unintended consequences. The fuzziness of systemic risk measurement means inherent difficulties in linking policy tools to fixed parameters, introducing a significant amount of unpredictability in countercyclical policy. But an ill-timed, forceful intervention – whether it is through tightening or loosening requirements – can be interpreted as a signal that trouble is underway, triggering the stress that supervisors want to avoid (cf. ESRB 2014c). Moreover, especially during market distress there is very little that supervisors can do, and once again an all too ambitious macroprudential policy may add to the problems. If macroprudential leniency takes precedence over microprudential stringency, it may as well result in individual firms going bankrupt – adding to the panic. If regulatory leniency allows firms to hide losses, this postpones but also prolongs financial problems (cf. Mügge and Stellinga 2015). So unfortunately, there is no straightforward approach to countercyclical policy. This means that if supervisors fear that bold actions trigger the problems they want to prevent, they have little incentives to back sweeping macroprudential reforms.

6.4 The limits to countercyclical policy

The empirical body of this chapter details the difficulties implementing an ambitious countercyclical macroprudential policy framework – focusing on the European Union. It does so by discussing five key issues that policymakers had to address: (1) the objective of macroprudential policy; (2) its calibration; (3) its scope; (4) its place in the wider financial regulatory framework; and (5) the implications of macroprudential ideas for microprudential aspects of the rules. The goal here is not to present an exhaustive description of the political processes leading up to specific policy outcomes. Instead, each section shows that even armed with new ideas, policymakers acknowledge that fundamental obstacles hamper their ability to confidently tackle financial market procyclicality. As such, it illustrates the argument that dilemmas internal to the macroprudential enterprise are a crucial factor inhibiting sweeping reforms.

6.4.1 Determining the appropriate objective

What would be an appropriate objective for macroprudential policy? The Committee on the Global Financial System (CGFS 2012: 5) stated that in an *ideal* world, macroprudential policy would consist of “policy decisions [that] are guided by a general, comprehensive, system-wide risk assessment. Decisions are taken in light of an accepted model which properly captures the links between systemic risk, market dynamics and macroprudential policy choices”. In such circumstances, the hopes of macroprudential proponents to “implement intelligent policies to contain future bubbles and credit binges, and to make sure that those that do occur inflict a lot less damage on the economy” (Yellen 2010: 22-23) would have a good chance of being realized.

But the intractability of systemic risks clearly hampers an overly ambitious goal. Deputy Governor of the *Banque de France* Landau (2009: 2) put the problem thus: “Bubbles are difficult to detect. Asset price boom-bust cycles become clearly apparent only after the event”. Policymakers acknowledged it would be difficult circumventing the ‘paradox of instability’, identified by BIS-experts:

the system looks strongest precisely when it is most vulnerable. Credit growth and asset prices are unusually strong, leverage measured at market prices artificially low, profits and asset quality especially healthy, risk premia and volatilities unusually low precisely when risk is highest. What looks like low risk is, in fact, a sign of aggressive risk-taking (Borio et al. 2012: 10).

This paradox was at the heart of supervisors' failure to flag the build-up of systemic risks before the crisis: if anything, supervisors appeared to believe that the system was more stable than ever (Borio et al. 2012). As a macroprudential expert puts it:

even supervisors are very inclined to believe that when things are going well, that things are going well. So before the crisis [...] I was hearing the refrain that "banks have never been as well capitalized as they are now, they have never had as good risk management as they have now...". It was very common (Interview 20161124a).

To the extent that supervisors escaped from pre-crisis euphoria, they could still fail to identify the build-up of systemic risk. In the words of a banking supervisor: *"back in 2006, so just before the crisis, we certainly did not think that things were getting out of control. We thought that we were still recovering from the Dot-Com Crisis"* (Interview 20161103). In short, identifying systemic risk is inherently difficult.

Moreover, macroprudential experts warned that a bold objective risked becoming self-defeating. Suggesting that supervisors can prevent systemic risks from materializing risks lulling policymakers and market participants into a false sense of security. Arguably, system-wide stress tests conducted before the crisis had this effect: by indicating that the system was sound, they created an unwarranted sense of security among policymakers and market participants, thereby buttressing the boom (Arnold et al. 2012). An overly ambitious countercyclical policy – fighting the financial cycle – risks doing the same, policy experts feared. As Barwell (2013: xv) puts it: *"policymakers will need to be vigilant that market participants do not act on the basis that [...] regulation has consigned financial instability to the dustbin of history – a belief which might lead to imprudent behavior, sowing the seeds of a future crisis"*. The countercyclical approach could then become part of the problem: supervisor's inaction on the countercyclical front would signal that systemic risk is low, boosting optimism, and contribute to the build-up of systemic risk (cf. Danielsson 2016).

From the outset, macroprudential experts stressed not to aim too high in terms of the policy objective (cf. BIS 2010; Borio 2011). The BIS (2008: 3) was clear on this point: *"the complete elimination of 'cycles' is clearly an unrealistic, and arguably undesirable, goal"*. In its design of the Countercyclical Capital Buffer (CCB), the BCBS thus made explicit that its *primary* goal is to increase firm resilience in the run-up to the crisis – and that policymakers should not aim for more with this the instrument. To the extent that it constrains the build-up of systemic risk, this must be seen as a desirable side-effect, not its primary target (BCBS 2010a). National macroprudential authorities' mandates are also modest. For example, UK authorities made explicit that the

macroprudential objective should not aim for more than boosting financial sector resilience (Turner 2015b).

6.4.2 Hardwiring countercyclicality?

The intractability of systemic risk also hampered the development of countercyclical tools tightly linked to early warning indicators (EWIs). Policymakers agreed that a (more or less) rules-based calibration of instruments would be preferable over an open-ended policy relying on supervisory discretion (BIS 2008; Borio and Drehmann 2009; Brunnermeier et al. 2009; IMF 2009). This would act as an effective pre-commitment device: during a boom, supervisors would not need to justify increasing rule-stringency – avoiding opposition from optimistic market participants or politicians benefitting from the boom (BIS 2008: 5). Moreover, ill-timed discretionary interventions risk being wrongly interpreted, unwittingly triggering market distress (CGFS 2012; see below). The message was clear: “[in] principle, rules are preferable” (FSB 2009: 11). The Committee of European Banking Supervisors went even further, stating that “countercyclical approaches *should* be based on automatic rules” (CEBS 2009: 2; emphasis added).

But this requires designing reliable EWIs. The ‘paradox of financial instability’ hampers this endeavor. It limits the usefulness of two potent candidates: those based on firms’ balance sheet items (such as measures of banks’ capitalization and profits), and those based on market prices (such as volatilities and credit risk spreads) (Borio and Drehmann 2009). As both are reflections of *current* market sentiment, they fail as EWIs. A macroprudential expert of the BIS stressed early on that

if the underlying problem is that everything is endogenous, one can move very quickly from states where "all looks well" to a much more serious set of circumstances. [...] One lesson from this is that we must not rely overly on "market-based" indicators to identify looming problems, if it is the market itself which is being overly optimistic (White 2008: 310-311).

Indeed, the record shows that market-based indicators are very procyclical: they signal low risk in good times, and vice versa (Shin 2013). This makes them primarily useful as signals of *current* market distress (thermometers) rather than as EWIs (barometers) (ESRB 2014c).

This buttresses the case for indicators based on deviations from long-term trends or averages. But these come with problems of their own. Market distress often results from a period of rapid financial innovation (Bronk 2013), the very novelty of which makes historical comparisons difficult (Borio and Drehmann 2009). As IMF-researchers put it:

Since we are dealing with rare events, historical experience may [...] be of limited value. Comparisons with past occurrences may not be useful, since

with evolution of the financial system in terms of contracts, institutions, operations, technology, and regulations, the nature of the interactions among financial players and the contagion mechanisms may be quite different (Agur and Sharma 2013: 9).

While looking at historical averages is probably the best supervisors can do (cf. Goodhart 2010a), it requires the future to match the past – increasing the risk that supervisors are preparing for yesterday’s crisis. Moreover, the non-linearity inherent to complex systems means that it is hard to know when trends have become unsustainable: “threshold effects severely complicate efforts to quantify the risk of a systemic crisis, and make it particularly difficult for a warning system to be ‘early,’ and not just begin to flash red when it is too late [..]” (Agur and Sharma 2013: 8). As a macroprudential policymaker admits, “*when you try to do countercyclical policy you must know and identify the cycle [..]. And this is something which is inherently difficult*” (Interview 20161207a).

These limitations were key to the design of the CCB. This tool would allow national supervisors to increase capital requirements in response to systemic risks building up. The Basel Committee wanted to introduce some discipline: rather than just delegate systemic risk identification to national supervisors, it set out to design a calibration method. Given the limitations of market-price and balance sheet indicators, indicators based on deviations from historical trends and averages seemed most promising. A BIS-discussion paper, examining a range of candidates, identified the so-called credit-to-gdp gap as the best leading indicator for financial distress (Drehmann et al. 2011). It measures the deviation from the trend of the ratio of ‘credit to the private sector’ to ‘a country’s GDP’. A substantial deviation would signal abnormal credit growth, indicating future troubles.

But even though this measure seemed a reasonably good early warning indicator, BIS-analysts remained cautious: “our analysis indicates [..] that any fully rule-based mechanism may not be possible at this stage. As a result, some degree of judgement, both for the build-up as well as the release phase, seems inevitable” (Drehmann et al. 2010: 27). The problem, as a senior policymaker put it, was that “*if you take multiple indicators it becomes terribly difficult to calibrate the instrument, but one indicator fails to incorporate everything you want to know*” (Interview 20161207a). Other experts had pointed at significant downsides of the credit-gap. Its reference to GDP might make it operate procyclically, as a country experiencing economic growth would see its credit-gap fall, and vice versa (Repullo and Saurina 2011).

So, while BCBS-members ultimately embraced the credit-gap indicator, they steered clear of quasi-automatic reliance (Interview 20161103). The BCBS proposed a method of ‘constrained discretion’: authorities were expected to look at the credit/GDP indicator, but could also look at other variables; and they should publicly explain their buffer decisions. What role the credit/GDP indicator was to play remained vague (Agur and Sharma 2013): the accord “does not require that the specific, internationally-consistent credit/GDP guide play a dominant role [...], [but] also does not imply that it should be totally ignored” (BCBS 2010c: 4). This vagueness came back in EU’s implementation of the CCB. CRD IV requires authorities to use the indicator as “a common starting point for decisions [...], but [it] should not give rise to an automatic buffer setting or bind the designated authority”. The ESRB even recommended that member states “*should* take into account a range of information when assessing the level of system-wide risk and set the buffer rate accordingly” (ESRB 2014b: recital 7; emphasis added).

Supervisors thus have much discretion in the calibration of the CCB. According to an EU policy official, this is an inevitable consequence of the measurement problem: “*How do you measure systemic risk? Nobody knows. There is not a unique measure, so I think that discretion is not going to be overcome for the next one-hundred years, or so*” (Interview 20161130). Relying on past trends to guide future actions will inevitably be limited. The same EU policy official:

True, there is this credit-to-GDP gap that by law you have to look at. But there are many reasons why this indicator might not give you precise indications. [...] If you look at it in different countries, the indicator is minus 25% and it will take fifty years before it comes back. So maybe you had a trend that was not really sustainable for many years before. So it is all biased (Interview 20161130).

In other words, the bias inherent to using a historical trend may unwittingly prevent supervisors from activating the countercyclical buffer, as it may have been distorted by pre-crisis credit growth. So supervisors are looking at a wide range of indicators to guide decisions on the CCB’s activation. The UK Financial Policy Committee (2016), for example, lists 18 ‘core indicators’, without specifying how it would ultimately decide on activating the CCB. It all boils down to the inherent measurement problem: “trying to define preemptive responses to a rare event using fuzzy measures to calibrate (infrequently used) tools is going to be difficult [...]” (Agur and Sharma 2013: 9).

Policymakers therefore reconsidered their initial ambitions to tightly link macroprudential tools’ calibration to systemic risk indicators. But the open-endedness of this discretionary approach to an important extent means kicking the can down the road. And it may contribute to the

unintended consequences of the other fundamental obstacle – the endogeneity of macroprudential policy. By introducing an inherent unpredictability in countercyclical policy, an ill-timed intervention could trigger the market stress that supervisors want to avoid. As a banking sector representative warns: *“if a supervisor turns off [the CCB], that is like organizing a press conference [...] to say that the crisis has started. I think the economy will become more procyclical rather than less because of the countercyclical buffer”* (Interview 20161205). Such concerns are also expressed by the ESRB (2014c: 110): *“The announcement itself may be considered as tantamount to an official declaration of a systemic event”*. In such stressed circumstances, buffer releases will be of limited help, as ‘the market’ will not allow banks to reduce their capital. As an EU policymaker fears: *“it is great to require more buffers in the upswing, but who is going to use them when you really need them? No one. So it is one-sided, I am afraid”* (Interview 20161207b).

Paradoxically, discretionary countercyclical measures may thus become part of the problem (cf. ESRB 2014c). This compounds supervisors’ inaction bias: if ill-timed countercyclical interventions trigger systemic stress, supervisors will have an even greater incentive to wait and see. As such, it is doubtful whether supervisors will pursue a bold countercyclical policy when needed. Ultimately, this dynamic is rooted in market reflexivity: market participants’ expectations shape future outcomes, and an ill-timed countercyclical policy risks triggering stress (cf. CGFS 2012). As the macroprudential proponent Goodhart (2010a: 3) admitted early on: *“If policies to restrain financial cyclicity had been easy to devise, and were without serious side-effects [...], they would already have been introduced”*.

6.4.3 Expanding the scope beyond bank capital?

With authorities having very little experience with operationalizing macroprudential ideas, the FSF (2009: 11) initially suggested to prioritize work on adapting capital requirements. Yet from the outset it had been clear to many that the scope of countercyclical policies had to be broader:

when there is exuberance it is very difficult to stop it with one single instrument. Because [market participants] are doing money [...], and when money is involved people are like sharks smelling blood. So you don’t stop them with a countercyclical capital buffer (Interview 20161201).

Indeed, reports published by leading international institutions in the crisis aftermath agreed that a broad implementation – so including countercyclical elements in liquidity requirements, margin requirements on securitized lending (such as repo-transactions), loan-loss provisioning, and credit extension – was warranted (BIS 2008; FSF 2009; IMF 2009). Yet expanding the scope of macroprudential policy beyond capital requirements has by and large faltered.

Real estate lending is one important area where many countries have adopted macroprudential tools other than bank capital requirements (IMF 2013b). Countries have introduced caps on loan-to-value (LTV) ratios and loan-to-income (LTI) ratios to discourage excessive leverage in good times and defaults and deleveraging in bad times. Effectively, these measures target the same problem as the CCB – that is, unsustainable credit growth in the ‘real economy’ – but by specifically targeting the housing market it is more ‘focused’. Most countries have opted for time-invariant measures, especially caps on LTV-ratios (ESRB 2016a). By tying maximum borrowing limits to the collateral value (the house), research suggests these measures may constrain the build-up of financial imbalances (cf. CGFS 2012). Countries, however, have shied away from introducing time-varying requirements. Like the CCB, such requirements would inevitably require a significant role for supervisors’ judgments (ESRB 2014c: 71). Although time-invariant backstops will not constrain systemic risk under all circumstances (Domanski and Ng 2011: 91 – the potential feedback loop between rising asset values and increased lending is not broken (Turner 2013: 12) – EU member states’ authorities have been reluctant to fully delegate such discretionary measures to macroprudential regulators.

The financial crisis was very much a liquidity crisis (Brunnermeier et al. 2009). As such, it would make much sense that macroprudential policy would contain tools to mitigate systemic liquidity risks, particularly bank liquidity requirements and haircut requirements on securities lending. The first deals with banks’ liquidity risks. The BIS (2008: 8) argued that the crisis highlighted the need for “better management of liquidity risk by financial institutions, especially the need for the build-up of liquidity buffers in good times to face adverse systemic conditions”. ‘Haircuts’ can be seen as the possible leverage in secured borrowing – and since the crisis policymakers have grappled how haircut requirements could limit financial system procyclicality. The CGFS (2010) tentatively suggested the FSB should consider introducing time-varying haircut requirements, going up (limiting lending) when systemic risks build up and down when risks materialize or recede.

But identifying the build-up of system-wide liquidity risks is extremely difficult. As the crisis demonstrated, seemingly small problems – corrections in the US subprime market, a relatively small segment in the US housing market – could set off a systemic liquidity meltdown. ‘Liquidity’ is where financial market reflexivity is arguably most problematic, as it is ultimately endogenous to financial system functioning: “liquidity [...] depends on confidence, i.e. the ability of depositors, institutions, and market participants to take risks on each other” (Banque de France 2008: 1). Liquidity does not refer to a stock of available funding in the financial system which could be

redistributed. Instead, “[when] liquidity dries up, it disappears altogether rather than being re-allocated elsewhere” (Brunnermeier et al. 2009: 23).

This implies that systemic liquidity risks may emerge in different places, limiting the ability of supervisors to find a small set of fool-proof EWIs. IMF-researchers acknowledged that deviations from historical trends would only provide limited guidance:

even with slow moving “fundamentals,” changes in expectations and the resulting adjustments in risk appetites can transform market liquidity, and alter the path and volatility of asset prices (Agur and Sharma 2013: 8).

As the IMF (2011: 97-98) – investigating the feasibility of macroprudential liquidity requirements – had to admit, it is “unlikely at this stage of development that there is a single, best measure of systemic liquidity risk that can be directly translated into a macroprudential tool” (IMF 2011: 97-98).

Calibration difficulties implied that newly developed liquidity requirements – the Liquidity Coverage Ratio and the Net Stable Funding Ratio; part of the Basel III package – are predominantly microprudential in nature: they are calibrated with reference to individual firms’ liquidity risks. Developing these standards proved difficult enough: all policy attention was devoted to *limiting their unintended systemic side-effects*, rather than focusing on explicit countercyclical calibrations (cf. ESRB 2014c). As a policymaker involved in the process recalls, “[it] was already difficult to reach agreement with what we have now. Trying to complicate it further by adding a macroprudential dimension... it would simply not have been feasible” (Interview 20161124a). EU law, however, does allow macroprudential authorities to increase the stringency of liquidity requirements in case of the build-up of systemic risks, this option falls under Article 458 of the CRR – which is meant to be supervisors’ very last resort and so very burdensome to activate (Interview 20161207b; see the next section). Moreover, there are hardly any substantive guidelines for activating this measure – except for some broad suggestions by the ESRB (2014c: 119-126) – implying that supervisors are in the dark under what circumstances they should increase liquidity requirements’ stringency.

Like liquidity requirements, time-varying haircut requirements on securities financing transactions proved too difficult to calibrate. The current approach is limited: to set (leniently calibrated) minimum haircut floors (FSB 2014; Interview 20161124b). While the ECB (2016) currently explores the feasibility of an explicitly countercyclical approach, a financial market regulator is very skeptical: “You don’t know how you would calibrate and design it. I can understand the [...] intellectual desire to develop that, but I am also an ex-supervisor, so I know the practical difficulty

associated with calibrating or designing such a mechanism” (Interview 20161124b). The problem is that arguably the best systemic risk indicators are market-based indicators of volatility and liquidity (ECB 2016), which only flag problems once problems materialize (Shin 2013). Time-varying haircut requirements would then involve a very high degree of uncertainty and guesswork on the part of macroprudential authorities. This is not without risks: as haircuts essentially constitute a limit on borrowing, supervisors fear that a discretionary significant raise in haircut requirements might prove destabilizing – effectively creating liquidity strains (Interview 20161124b). So while policymakers have not discarded the possibility of designing countercyclical haircut requirements, for the time being they settle on time-invariant minima.

So as Avinash Persaud (2014: 161) – a key macroprudential policy pioneer – laments: “a [...] problem with the current thinking on macro-prudential policy is that it is fixated with capital”. While there are still attempts to expand EU macroprudential policy beyond bank capital, there appears to be little momentum (Interview 20161130). The EU’s recently issued macroprudential policy review only touches upon the scope-issue and does so in a very open-ended way. It asks whether respondents would consider expanding the macroprudential framework beyond banking to be appropriate (EC 2016a: 12), without given any concrete suggestions what domains would be suitable to introduce additional measures. For the time being, the scope of countercyclical policies will likely be circumscribed.

6.4.4 Embedding macroprudential policy

Policymakers acknowledged that macroprudential considerations could potentially conflict with other financial policy considerations (such as microprudential or competition concerns) and with fiscal and monetary policies (BIS 2008). A key task therefore was to embed macroprudential policy in the wider regulatory framework. A particularly thorny issue in the EU was the conflict between allowing ‘national varieties of macroprudentialism’ and the long-standing wish to harmonize financial regulation (Buckley et al. 2012; Baker 2014).

Experts argued that EU macroprudential policy needed to incorporate differences in national financial cycles (Turner 2013: 20). A one-size-fits-all policy would likely be a one-size-fits-none. This was the prime reason for US skepticism towards the CCB (Masters 2011). As recalled by an EU policymaker,

they have 50 states, but one jurisdiction. [...] They cannot set the buffer at a different level for California and Nebraska. [...] It is not flexible for them. And therefore they were less keen, because they cannot differentiate among states (Interview 20161207a).

Given EU's ability to fine-tune rule-stringency to local circumstances, countercyclical policies thus seemed to stand a better chance there. But how to reconcile such national differences with level playing field considerations?

Champions of the macroprudential approach suggested this conflict should be resolved in favor of financial stability considerations: to allow "an unlevel playing field between countries as a result of [...] economic cycles that are often less synchronised than they appear" (Warwick Commission 2009: 8). International organizations more cautiously suggested that jurisdictions should have

sufficient flexibility to tailor policies to national financial conditions and circumstances. [...] A clear lesson from the crisis is that the largest spillovers occur when countries fail to act promptly to head off problems – given the interconnectedness of the global banking system, systemic risk in one country can rapidly become a problem for other countries (FSB et al. 2011: 20).

In short, macroprudential policy considerations should in certain circumstances trump international level playing field considerations, experts argued.

But the lack of clarity on how to identify and tackle systemic risks obstructed the attempt to put macroprudential policy on a firm footing. The European Commission (EC) and several Member States considered increasing the scope for national discretion very problematic. With limited consensus on the nature of systemic risks, it would be very hard to evaluate whether specific national macroprudential measures were warranted (Interview 20161130; Interview 20161201).

According to an EU policymaker,

there was a very strong fear of misuse of macroprudential instruments for competitive reasons. [...] One has also to fully understand this, because otherwise it looks like paranoia: in the years before the financial crisis, national regulators and supervisors very often had been the bastion of financial protectionism (Interview 20161201).

The EC feared that countries' idiosyncratic macroprudential measures would create an unfair competitive edge. This sounds counterintuitive, as normally one would consider *lenient* rules the source of firms' international competitive advantages (cf. Blom 2011). But the Commission argued that *superficially* stringent national requirements (gold plating) would give those institutions an advantage over their competitors, forcing other countries to follow suit regardless of its desirability from a stability perspective (Nordic Working Group 2012: 11).

The EC thus pushed for limited national discretion, including on macroprudential policy. It was supported in this stance by many EC members, most notably France and Germany, and internationally active financial institutions (Interview 20161207a). In its proposal for new bank

capital requirements (CRD IV/CRR) – EU’s implementation of Basel III – the EC (2011) effectively doubled down on EU harmonization. Key prudential requirements were included in a Regulation, implying they would be directly binding to financial institutions. The EC confined the scope for national macroprudential policy to only two instruments: apart from the CCB, it allowed national supervisors to increase capital requirements for real estate exposures and/or to introduce loan-to-value (LTV) limits for such exposures.

The EC strategy was controversial. Other member states – most notably the UK, Spain and several Nordic and Eastern European member states – argued against this ‘maximum harmonization’ approach (cf. Djankov et al. 2011; European Bank Coordination Initiative [EBCI] 2012; Nordic Working Group 2012; Draghi 2012). They emphasized that the Basel Accords had always been intended to be minimum rather than maximum requirements. As Member States’ public finances bear the costs of financial instability, they should have the capacity to require more stringent requirements. Last but not least, the maximum harmonization approach would conflict with the push for a macroprudential approach to regulation (Djankov et al. 2011). As the Bank of England (2011: 8) emphasized, “the rationale for maximum standards is not clear from a prudential perspective. Indeed, the reason for allowing countries to set capital requirements above the common minimum is to allow them to prevent systemic risk”.

The compromise solution was to give national authorities more discretion on macroprudential policy, while introducing extensive *procedural* requirements before they could activate the tools. Most importantly, national authorities could now (permanently) require higher capital buffers for systemically important institutions – through the Systemic Risk Buffer (Article 133-134, CRD IV) and two other buffer options (the G-SII and O-SII Buffer; Article 131, CRD IV). For cyclical risks, the EC introduced the so-called Flexibility Package (Article 458, CRR). When a national regulator identifies changes in the intensity of macroprudential or systemic risk in the financial system, it may draft national measures for several domains (including the level of own funds, liquidity requirements, risk weights for real estate exposures, and intra-financial sector exposures) to address these (for a period up to three years).

But the EC designed Article 458 as the last resort for national authorities – only to be used when a national authority can justify that all other options prove insufficient (Interview 20161207b). It included a lengthy notification and consultation procedure (including the ESRB and EBA), hardly making it an attractive tool to quickly mitigate systemic risks:

this is a very burdensome and difficult procedure. Because one camp wanted that it would be difficult, [lest] the single rule book will be undermined. And

the others insisted that there should be the possibility for this flexibility. And then this procedure is [...] difficult, and it takes at least two hours to explain all this (Interview 20161207a).

The complicated procedure thus had been a purposeful countermeasure to member states' demands for national discretion: *"the Commission responded by introducing a very complicated procedure that ensured that almost nobody would want to use this Article"* (Interview 20161207b). As such, Flexibility Package may be somewhat of a misnomer.

Paradoxically, whereas the macroprudential literature advocates limited discretion to *force* supervisors to act, the EC appears to favor *discouragement*. Lack of clarity over how to identify the build-up of systemic risks led to a focus on *procedural* rather than substantive requirements. Although national authorities' obligation to *justify* the necessity of invoking Article 348 may be an implicit substantive requirement, it displaces the problem. And while the ESRB (2014c: 141-161) provides some suggestions what indicators could be looked at, it stressed that

further work should be done to assess [the indicators'] effectiveness in contributing to the identification of systemic risk (e.g. whether there are key thresholds indicating the build-up of risk) and whether they should be used more actively to guide the activation of policy instruments (ESRB 2014c: 158).

It admitted that for the time being, *"the proposed indicators can be considered alongside a wider set of information, including market and supervisory intelligence, to guide the use of the instruments"* (ESRB 2014c: 158). As such, continued controversy over macroprudential policy's substantive aspects suggests it will likely continue to occupy a peripheral place in the wider regulatory framework.

6.4.5 Mitigating microprudential procyclicality

Critics of the pre-crisis microprudential approach argued that macroprudential ideas also had key implications for redesigning the micro-rules (Warwick Commission 2009; Baker 2013). They argued that financial firms' risk assessment practices had put procyclicality in overdrive, identifying backward looking loan-loss provisioning and the short time-horizons of banks' market and credit risk models as prime culprits (cf. Warwick Commission 2009). As these had been sanctioned or boosted by regulation, they were central in the procyclicality debate, at least initially (cf. BIS 2008): *"the debate was how to adjust micro-tools – the prudential tools – in such a way that you instill a stronger systemic perspective or orientation"* (Interview 20161124a). Policymakers feared that macroprudential add-ons would amount to little if risk-assessment practices were not addressed (BIS 2008; FSF-BCBS 2009; FSF-CGFS 2009; FSF 2009).

The core procyclicality problem here is the sensitivity of financial firms' risk-management practices to recent market developments. In jargon, the debate is whether firms should make point-in-time (PIT) or through-the-cycle (TTC) risk-assessments (EBA 2015b). PIT-models assess an exposure's riskiness based on current conditions; if market conditions change, assessments should be revised. Critics blame such cycle-sensitive outputs for inducing procyclicality (Warwick Commission 2009). They present TTC-models as more desirable alternatives. These attempt to filter out cyclical effects by using longer time-horizons, implying risk assessments should not be revised when overall market conditions change. But while TTC-models provide more stability, they may downplay market trends too much. It encourages firms to ignore mounting problems until it is too late, meaning they are unprepared for what hits them. Similarly, in the downturn it might induce them to understate problems. While this might mitigate short-term stress, it could merely make future problems worse. This creates a fundamental policy dilemma: while relying too much on recent market developments creates problems, downplaying them can be detrimental as well (cf. Mügge and Stellinga 2015).

This dilemma has hampered reform in two areas that the BCBS (2009b: 66-72) specifically labeled as key reform priorities: capital requirements' procyclical effects, and loan-loss provisioning. Regarding the former, the core issue was regulatory reliance on firms' risk models. Critics blamed the Internal Ratings Based (IRB)-approach of the Basel II Accord (2004) for contributing to procyclicality (Di Noia 2009). BIS-researchers more cautiously pointed out that excess cyclicity in capital requirements would make countercyclical tools less effective (Drehmann et al. 2011: 26). But Basel II was barely implemented when the crisis hit, creating uncertainty whether the approach was really misguided (FSA 2009b). Moreover, it already contained some provisions to limit procyclicality, for example by dampening the sensitivity of capital charges to changes in measured risk, by requiring stress testing, and by encouraging banks to incorporate TTC-elements in their models (cf. Tarullo 2008: 180). And Basel II was specifically designed to be more risk-sensitive, meaning that some degree of cyclicity in capital requirements was inevitable (Caruana 2005). Hence, it was not obvious that the cyclicity inherent to the Basel II IRB-approach was unwarranted (cf. BCBS 2010a: 5).

Still, policymakers considered capital requirements' potential procyclical effects a pressing issue. A solution could be to require a wholesale shift towards TTC-risk models. But regulators were reluctant to fully depart from the models' PIT-aspects. TTC-assessments would likely increase bank discretion, increasing manipulation risks – problematic from both a level playing field and a financial stability perspective (cf. Repullo et al. 2009). An alternative option would be to adjust the

outputs of banks' risk models with reference to indicators of the financial/business cycle (BIS 2008: 16; FSA 2009b) – comparable to CCB-approach. But this risked making the *total* capital adequacy framework's strength dependent upon (national) supervisors' ability to read the cycle; a road policymakers did not dare go down.

The BCBS (2010a: 5) therefore deferred the issue, stating it would monitor “the impact of the Basel II framework on its member countries over the credit cycle. Should the cyclicalities [...] be greater than supervisors consider appropriate, the Committee will consider additional measures to dampen such cyclicalities”. It stressed that banking supervisors could use the framework's discretionary options to mitigate any perceived excess cyclicalities. According to a banking representative, supervisors have done just that: “*it has become much more clear that banks, at all times, need to use downturn information in their models, and if they do not have them they need to use and apply a conservative downturn factor to adjust the data. [...] Supervisors have become much more strict on these issues*” (Interview 20161205). Moreover, the EBA and the ECB are working on more harmonized definitions of key concepts such as ‘probability of default’, to ensure less discretion for banks to implement model requirements too leniently (Interview 20161205).

Meanwhile, efforts to establish a clear link between the IRB-approach and increased procyclicality have led nowhere. A recent EBA (2016: 74) study finds – with some important disclaimers – “limited evidence of any significant pro-cyclical effect induced by the regulatory framework”. The EBA also points out that excess cyclicalities can always be offset by countercyclical macro-tools such as the CCB – apparently downplaying the fact that the CCB's strength depends on banks' risk-estimates. It therefore recommends to retain the current risk-sensitivity in EU banking requirements, while stopping short of suggesting to mandate a particular rating approach (PIT or TTC). Instead, the current hybridity – where PIT-models incorporate TTC elements – seems the best compromise solution (cf. EBA 2015b: 14).

There have been more significant reforms of loan-loss provisioning rules, but also here the underlying regulatory dilemma continues to haunt policymakers (see also chapter 3). Under the IASB's pre-crisis ‘incurred loss approach’, banks generally had to wait for losses to materialize before they could make a provision. Banking regulators blamed this approach for inducing procyclicality, although they had to admit that banks themselves had also failed to make prudent provisioning decisions (FSF 2009: 20). They argued for a more forward-looking approach (BCBS 2009c).

The IASB (2009a) appeared susceptible to regulators' wishes. It proposed an 'expected loss approach', giving firms more freedom to use their risk-models to assess future problems. But the devil was in the detail. Fearing discretion would allow firms to 'cook the books', the IASB favored a PIT-approach, as this would be easier to verify than the more subjective TTC-approach. Banking regulators, in contrast, feared for worse forms of procyclicality: "if [provisions are] calculated by reference to current market expectations of future losses, there is a danger that the new approach could actually be more procyclical than the past" (Turner 2010a: 3). But they also recognized that firm discretion could have undesirable consequences: "[If] calculated by reference to judgements about future possible losses [...] investors might have concerns whether these [...] are based on fact [...]" (Turner 2010a: 3-4).

The final version of the expected loss approach – issued in 2014, as part of IFRS 9 – was a compromise between the demands of accountants and regulators (cf. Novotny-Farkas 2015). While the technical details are too much to go into, the short (if simplifying) message is that the IASB kept the main tenets of the PIT-approach. Although most stakeholders are in principle happy with an expected loss approach (cf. EBA 2016), IFRS 9 has nonetheless become a cause for much concern. While accountants and investors fear the increased discretionary space, many EU banks see a different problem: they expect the standard to substantially increase required provisions (Novotny-Farkas 2015; Interview 20161207b). Given recent bad economic circumstances, the PIT-estimates are quite pessimistic (Interview 2061208). As provisions are deducted from income (also affecting capital figures), banking representatives blame the standard for procyclicality (Contiguglia 2016). And as any mismatch in banks' actual and required provisions are (up to a certain level) deducted from regulatory capital, a failure to substantially increase provisions would also deal a significant blow to banks' capital adequacy figures (Marlin 2017). EU banks say they are stuck between a rock and a hard place.

EU policymakers dislike the idea banks' profitability and capital adequacy ratios taking another hit: *"Banking supervisors and the European Commission are getting anxious, asking themselves: 'are we going from too little too late to too much too early?'"* (Interview 20161207b). The EC has recently suggested a transitional arrangement of up to five years after IFRS 9 enters into force (this should happen in 2018), to ensure a limited impact on capital figures (EC 2016b: 264-5; cf. BCBS 2016). Yet giving banks breathing space now might merely make future problems worse. Already the aggregate level of EU banks' provisions is deemed insufficient to address the non-performing loans problem (IMF 2015). Are regulators confident that better times are around the corner, so that they can be lenient for now? There is no way to tell. It might just as well prolong the current

malaise far into the future. Even with the new macroprudential philosophy, this is an intractable dilemma.

In sum, regulators are at a loss how to deal with the issue of the procyclicality of firms' valuation approaches. Ultimately, they face the dilemma that cycle-sensitive and cycle-insensitive approaches can contribute to systemic risk, and policymakers see no way out but to adopt half-baked reforms that are never fully satisfactory. It is far from evident that sweeping reforms – for example, risk insensitive approaches – would make things better. Macroprudential ideas offer limited guidance here. Indeed, shortly after the crisis, Goodhart (2010a: 17) had warned for too much optimism in these domains: “the behaviour of banks, and almost everyone else, that seems largely based on the extrapolation of recent trends, and hence reinforces the cycle, is not driven by irrationality. It is the best that can be done”. While macroprudential ideas surely increased policymakers' awareness of the dangers of market-sensitive valuation approaches, this did not mean there was an obvious solution. If solving one source of systemic risk would merely create another, policymakers had little incentives to implement sweeping reforms.

6.5 Conclusion

Many scholars and policymakers identified macroprudential ideas as a potential ‘game changer’ in financial regulation. I have argued that fundamental obstacles have hampered the materialization of an ambitious policy shift. Not only do supervisors face inherent limits when trying to ‘read’ the cycle, but policymakers fear an ill-designed ambitious policy would have significant unintended consequences. The implemented reforms are far cry from the post-crisis hopes for a regulatory framework eliminating the financial system's boom-bust nature. Ultimately, there are hard limits to what regulators can do to tame the cycle through countercyclical macroprudential regulation.

Even if the reforms appear limited from a ‘paradigm shift’-perspective, they may certainly constitute an improvement when compared to pre-crisis policy. Policy officials argue that the greatest benefit lies in the institutionalization of a systemic risk perspective in the supervisory architecture, in combination with a formalization of supervisors' ability to intervene if they deem certain market developments unsustainable (Interviews 20161122; 20161124a; 20161201; 20161207a). Moreover, even if measurement and calibration issues severely hamper countercyclical policies, macroprudential instruments can still increase the financial system's resilience. So loan-to-value limits may certainly limit financial fragility, even they will not prevent all problems (Agur and Sharma 2013).

On the other hand, there is a risk that overstating the significance of macroprudential reforms legitimates the status quo in other policy domains. Microprudential policy is one example. As a senior policymaker puts it: *“macroprudential overlays have a greater probability of success if they are based on a very, very strong microprudential framework”* (Interview 20161124). But critics warn that politicians’ misplaced trust in macroprudential policies now unwittingly legitimates a baseline microprudential policy that is in fact too weak (cf. Barwell 2014; Daniélsson 2016; Blanchard 2016). Monetary policy is another example. While it is clear that central banks’ pre-crisis focus on price level stability failed to ensure macro stability (Group of Thirty 2015), monetary authorities wary of reform can now argue that *“implementing an effective macroprudential policy [...] creates the conditions in which the single monetary policy is able to ensure price stability in accordance with its mandate”* (Deutsche Bundesbank 2015: 71). But as the same policymaker warns: *“some monetary policy authorities think that macroprudential policy is enough to deal with financial stability. I think it can help, it is definitely part of the solution, but it cannot solve the problem”* (Interview 20161124). In short, macroprudential policy might unwittingly preempt policy reforms in other areas with a key impact on financial stability.

While financial markets are inherently unstable, this does not mean that their destructive potential is a constant of nature. The thirty years after World War II – a period of financial restraint – was especially remarkable for what did not happen: a major systemic financial meltdown (Minsky 1982). But financial liberalization since the 1970s onwards has weakened financing constraints, *“supporting the full self-reinforcing interplay between perceptions of value and risk, risk attitudes and funding conditions”* (Borio 2012: 6). The flipside of financial liberalization is households’, corporates’, and semipublic organizations’ ever-increasing dependence on the financial system – making society at large very vulnerable to the boom-bust nature of financial markets (OECD 2015). The next and final chapter will, among others, discuss the policy implications of these developments in light of financial markets’ reflexive nature.