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The financial valuation crisis

The inherent limits to taming unstable markets

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4 Mitigating the systemic risk of credit ratings. Performativity as a stability threat and as a regulatory problem

4.1 Introduction

The globalization of finance and the transformation of the banking business from the 1980s onwards not only made regulators reconsider accounting standards, but also presented them with fundamental questions regarding the ways in which banks measure and mitigate financial risks. A key issue was how to ensure that public regulation would stimulate prudent risk management. Policymakers worried about excessive mismatches between public requirements and private practices, flagging that this would hamper market efficiency and invite regulatory arbitrage. In response, regulators deemed (partial) reliance on private risk management practices a particularly promising way forward, hoping this would stimulate firms to improve their risk management techniques, thereby aligning public and private interests. A key example is the Basel II capital adequacy accord (2004), which not only increased regulatory reliance on banks' risk models, but also stimulated reliance on credit ratings.

The global financial crisis of 2007-9 showed that this strategy had severe shortcomings. Credit ratings' flaws were most visible: as the Big Three credit rating agencies (CRAs) – Standards & Poor, Moody's and Fitch – downgraded thousands of securities previously labelled safe, they were at the center of the market panic. The crisis also challenged the regulatory approach towards CRAs. Before then, policymakers essentially focused on CRAs' governance and their transparency to outside investors. They hoped this would ensure that investors were not duped by CRAs' integrity problems, rooted in their issuer-pays business model. It took the crisis, however, to convince policymakers that ratings, by inducing herd behavior, can contribute to systemic risks. These systemic problems stem from CRAs' rating approaches (their methodologies), market participants' overreliance on these ratings (partly induced by their inclusion in regulations), and the homogeneity of the Big Three's ratings (Morris 2008; Sy 2009). While these issues had surely been recognized before, policymakers had hitherto opted for a hands-off approach (Mügge 2011a).

The magnitude of the crisis would lead us to expect bold regulatory actions to tackle these systemic rating problems. Critics argued that the pre-crisis focus on *governance* requirements would not suffice: regulators should get involved in the *substance* of both CRAs' and firms' risk assessment practices. They pleaded for a full removal of ratings from regulations, public control

over CRAs' methodologies, and setting up a public alternative to the Big Three (Bofinger 2009; Partnoy 2009; Sy 2009; Kruck 2011).

Surprisingly, the implemented reforms are timid. Policymakers have only very moderately succeeded in reducing (regulatory) reliance on ratings. They also avoided prescriptive rules on the content of CRAs' methodologies. And they shied away from setting-up a public CRA. Regulatory steps mainly come in the form of governance requirements (aimed at both CRAs and market participants), and predominantly address CRAs' integrity problems. Post-crisis rules show much more continuity with the pre-crisis approach than expected.

Why were the systemic problems not tackled through ambitious, substantive measures? IPE scholarship on CRA-regulation provides a variety of explanations for limited reforms. Institutionalist accounts argue that the path-dependency of CRAs' previous public endorsement made a radical switch too costly (Chiu 2013; Kruck 2016). Other scholars stress that it is mainly CRAs' lobbying efforts that account for meagre reforms (Underhill 2015). Yet others hold that policy continuity stems from the resilience of policymakers' pro-market beliefs (Pagliari 2012b). Despite their differences, all these explanations share the assessment that the key obstacle to fixing ratings' systemic problems is regulators' *unwillingness* to do so. The normative implication is that regulators have apparently failed to implement reforms conducive to the public interest.

This chapter, in contrast, argues that limited reforms stem not from regulators' *unwillingness* but their *inability* to remove ratings' systemic problems. It argues that regulators have shied away from intrusive reforms for fear that they would make things worse, not better. This dynamic is rooted in the performativity of risk assessments (including credit ratings): rather than merely *reflecting* risks, they *shape* them (Sinclair 2010; Carruthers 2013; Esposito 2013b; Paudyn 2013; critical: Svetlova 2012). Rating performativity has particularly pressing *regulatory implications*: while it is clear that CRAs' actions can have nefarious consequences, it hampers regulators' ability to fix them.

Performativity implies that what seems to be a desirable cure (public intervention in the *substance* of risk assessment practices) might in fact be worse than the disease (ratings' systemic effects). Replacing all rating references in regulation with another risk indicator might merely switch the source of systemic risk to this other indicator. As the main alternatives to ratings are based on market prices, this feedback loop might increase market volatility. Similarly, standardizing methodologies or setting up a public CRA risk reinforcing herd behavior – either because CRAs' rating actions become even more synchronized, or because participants give a disproportionate

weight to the public CRA's assessments. In short, it is not regulators' unwillingness to fix the systemic problems: performativity introduces key regulatory dilemmas and makes bold actions potentially harmful.

Regulators recognize the limits of what regulation can do to fix ratings' systemic problems. The appreciation of these inherent limitations, more than external obstacles such as private sector resistance, accounts for the limited post-crisis reforms. While this assessment implies that scholars should be careful in dismissing post-crisis reforms as a blatant failure, it should certainly not warrant an uncritical embrace of the status quo. Indeed, if CRA re-regulation will unlikely prevent future problems, this necessitates a proactive rather than a fatalist policy approach – a point that I will stress in the conclusion (more elaborate in chapter 7).

The chapter proceeds as follows. The next section details the (apparent) mismatch between the significance of the problems and the timidity of regulatory reforms. It then borrows from the performativity literature to argue that performativity not only limits regulators' ability to tackle the systemic problems, but also implies intrusive reforms are potentially harmful. The chapter's empirical body details European Union (EU) policymakers' struggles to tackle the three key issues mentioned above: (1) addressing rating overreliance; (2) regulating rating methodologies; and (3) setting-up a public CRA.

4.2 Systemic problems, a timid response

4.2.1 Increased reliance on private sector risk measurements

The ratings of the Big Three CRAs – Standards & Poor, Moody's and Fitch – play a crucial role in global financial markets. A credit rating is an indicator of a CRA's assessment regarding the creditworthiness of a particular entity (such as a firm or a government) or a particular obligation (such as a structured finance security), expressed using a ranking system. Ratings are meant to assess the probability of defaults or losses for investors. The economic literature generally treats ratings as a tool to decrease the inherent information asymmetry between the debt issuer and investors (White 2010), providing a "focal point" for investors (cf. Boot et al. 2006).

In the two decades leading up the financial crisis, credit ratings gained a more prominent role in European financial markets. Financial globalization and the integration of European capital markets were of key importance (Brummer and Loko 2014). The inclusion of ratings in (especially banking) regulation was a contributing factor (McVea 2010). Ratings also informed the European Central Bank's assessment of banks' collateral in refinancing operations (European Central Bank

[ECB] 2008), thereby stimulating banks to pay attention to their assets' credit ratings. And national authorities used ratings (albeit only limitedly) in investment fund regulation (García Alcubilla and Ruiz del Pozo 2012; FSB 2014). While in the run-up to the crisis the EU still did not match the USA's rating reliance, it was definitely catching up (Menillo and Roy 2014).

The Basel II capital adequacy accord (2004) was arguably the most important rule-set stimulating reliance on credit ratings. This accord stipulated that risk weights used to determine capital requirements for credit exposures should henceforth be based to a significant extent on market participants' risk assessments. In the so-called 'standardized approach', banks should use credit ratings (if available) to determine risk weights. Banks with advanced risk management techniques would be allowed to use the 'internal rating based' (IRB)-approach to credit risk, allowing them to calculate key risk parameters themselves. Moreover, the so-called Securitization Framework determined that all banks should rely on credit rating agencies to calculate structured finance exposures. Given these instruments' complexity and lack of data of the underlying exposures, regulators deemed it undesirable if banks were to do the risk calculations all by themselves (Weber and Darbellay 2008; FSA 2009b; Alexander 2014).

Despite these developments, the EU refrained from regulating CRAs. The European Commission (EC) had actually championed a system of monitored self-regulation, requiring the Committee of European Securities Regulators (CESR) to check CRAs' compliance with the International Organization for Securities Commissions *Code of Conduct* (IOSCO 2004; European Commission [EC] 2006). To protect investors from being duped by CRAs' integrity problems, this framework essentially focused on internal governance and transparency (Brummer and Loko 2014). For the Big Three CRAs, the IOSCO-framework did not really constitute a significant regulatory burden: the bar was so low that these CRAs were already by and large compliant when CESR checked them (CESR 2006).

European capital adequacy rules implementing Basel II (the Capital Requirements Directive; CRD) required banks to use ratings issued by explicitly recognized 'External Credit Assessment Institutions' (ECAIs) for regulatory purposes. The CRD formulated several requirements that CRAs needed to meet before the relevant national authority could grant them recognition. Yet in practice banking supervisors recognized the major CRAs as ECAIs without much scrutiny. As such, the European Commission (2006) admitted that in practice this measure too fell short of regulating CRAs (Sy 2009). Rules on banks' internal models were more stringent in that regard: banks were

required to do all sorts of model tests before being allowed to use the IRB-approach (Interview 20160316).

4.2.2 Problems exposed by the crisis

The financial crisis, however, exposed serious shortcomings of both regulatory strategies. Critics attacked regulatory reliance on banks' internal risk models as being fundamentally misguided (e.g. Warwick Commission 2009). According to the influential Turner Review (Financial Services Authority [FSA] 2009b: 44), the crisis revealed "severe problems with these techniques". In particular, it argued that the risk models had too short observation periods, unwarrantedly relied on the 'normal distribution', and ignored correlation and feedback effects. More fundamentally, the crisis posed "fundamental questions about our ability in principle to infer future risk from past observed patterns", arguing that in a social system such as finance it we might need to recognize "that we are dealing not with mathematically modellable risk, but with inherent 'Knightian' uncertainty" (FSA 2009b: 44-45). Other critics emphasized the incentive problem: as banks aim to maximize return on equity, but also want to present good capital figures, they have a motivation to underestimate risk weights (Carmassi and Micossi 2012; we will get back to the issue of internal ratings in chapter 6).

Flaws in credit ratings were more visible: from the Summer of 2007 onwards, CRAs downgraded thousands of asset backed security-tranches to junk status, triggering massive panic. The crisis exposed systemic problems: widespread reliance on apparently dubious ratings issued by a small number of CRAs had contributed to the build-up and materialization of systemic risk (Sy 2009). While integrity problems had surely played a role in the structured finance debacle (Coffee 2011; US Permanent Subcommittee on Investigations 2011; White 2010), policymakers agreed they were not the whole story (cf. Kruck 2016: 4). This assessment was reinforced by the onset of the Eurozone sovereign debt crisis: as sovereigns generally do not pay to get rated, CRAs' actions could hardly be explained by their issuer-pays business model. Instead, the problem was more fundamental: it was the systemic risk of widespread reliance on specific risk indicators.

These problems partly stemmed from CRAs' methodologies – both individual methodologies as well as their general rating approach (Sy 2009). CRAs' structured finance methodologies proved flawed: they lacked long-run data on default risks for structured finance products; they missed the deteriorating quality of the underlying asset pools; they were too sanguine about the US housing market and correlations between defaults; and they erroneously supposed that risk probabilities followed a normal rather than a 'fat-tail' distribution (Committee on the Global Financial System

[CGFS] 2008; FSA 2009a). Observers criticized CRAs' general risk assessment approach – their attempt to rate 'through the cycle' – for being slow to respond to changing market conditions, while overshooting once problems seemed evident (Deb et al. 2011).

The systemic problems went beyond the dominant CRAs' rating approaches to include market participants' overreliance on their ratings. Investors herded into highly rated structured finance securities, leading to the build-up of systemic risks (Financial Stability Forum [FSF] 2008). Herd behavior was stimulated by the inclusion of ratings in regulations (most notably in the Securitization Framework and the Standardized Approach to credit risk of the Basel II accord) and in asset management contracts (Sy 2009). Widespread reliance ensured that downgrades and fire-sales reinforced one another in vicious downward spirals. Finally, the sector's oligopolistic structure and CRAs' homogeneous rating actions ensured that everything collapsed simultaneously (Deb et al. 2011).

4.2.3 A timid regulatory response

While potential stability risks stemming from inadequate methodologies, market overreliance, and rating homogeneity had been recognized before, policymakers had so far been cautious. Given the magnitude of the problems, one would expect the crisis to trigger a bold regulatory response. Critics pleaded for *substantive remedies*: policymakers should take control over firms' risk assessment practices. They argued for abandoning regulatory reliance on ratings (Partnoy 2009; Kruck 2011), setting up a public EU CRA to increase diversity in the rating sector (Bofinger 2009), and introducing public control over ratings methodologies (Underhill 2015).

Yet actual reforms fail to live up to these expectations. EU policymakers have only very moderately reduced regulatory reliance on ratings (Kruck 2016). They have hardly tackled CRAs' methodology failures and have avoided regulating their content (Paudyn 2015; Underhill 2015). And the continued dominance of the Big Three CRAs implies a lack of ratings diversity, after the EU refrained from setting-up a European (public) CRA that many politicians deemed necessary (Schroeder 2015).

To be sure, there has been quite some regulatory action. The EU abandoned its hands-off approach and adopted a Regulation (CRA 1) in 2009 (Quaglia 2013). These rules require CRAs to rotate analysts frequently, prohibit them from mixing consultancy and rating services, and ban analysts from rating an entity in which they have an ownership interest. They introduce procedural requirements for rating methodologies and require transparency on CRAs' potential conflicts of interests and their procedures to ensure high quality ratings (García Alcubilla and Ruiz del Pozo

2012; Pagliari 2012b). This Regulation was amended in 2011 (CRA 2) to entrust the newly created European Securities and Markets Authority (ESMA) with the authority to register and supervise CRAs. The Eurozone debt crisis triggered a third amendment, finalized in 2013 (CRA 3). Among others, this reform defined procedural requirements for sovereign debt ratings, introduced a civil liability regime for CRAs, and obliged market participants not to rely on ratings in a mechanistic manner (cf. Chiu 2014, for an extensive discussion of these measures).

Yet, these regulatory solutions mainly consist of *governance* requirements, and then mostly to address CRAs' integrity issues. In contrast, policy solutions for the systemic problems are limited, and policymakers have avoided becoming prescriptive on the *substantive aspects* of firms' and CRAs' risk assessment approaches. Instead, they encourage firms also to consider other risk indicators in their conduct, and they check CRAs' procedures for the development, application, and revision of methodologies.

4.2.4 Dominant explanations for lack of reform

This policy outcome is surprising: after all, the systemic problems were the most pressing issues, and substantive measures seemed an obvious remedy. What explains it? The post-crisis CRA-literature provides various explanations. Ideational accounts focus on changes in policymakers' regulatory beliefs (Pagliari 2012b). Here the argument is that pre-crisis pro-market ideas have been much more resilient than many expected: regulators could attribute rating failures to misaligned incentives – a framing chiming perfectly well with pre-crisis policy precepts (Mügge 2011a). Private interest accounts, in contrast, argue that successful opposition from vested interests (the dominant CRAs) hampered more fundamental reforms. While regulators to set out to fix rating flaws by designing rules conducive to the public interest, they were led astray by particularistic interests, so the argument (Underhill 2015).

The arguably dominant approach – the institutionalist perspective (cf. Moschella and Tsingou 2013) – argues that lack of fundamental reform stems from policy's path-dependency. Despite CRAs' obvious mistakes, regulatory reliance on ratings has made public and private actors structurally dependent on CRAs' risk analyses. Lacking the required risk assessment expertise and capacity themselves, policymakers find it too costly to revoke CRAs' earlier granted quasi-regulatory status (Chiu 2013; Menillo and Roy 2014; Kruck 2016).

These perspectives each highlight important facets of the post-crisis regulatory politics. Yet they share an assumption that I argue is unwarranted: the key obstacle to fix ratings' systemic problems is regulators' *unwillingness*. This rests on a flawed notion of ratings: they are treated as *reflections*

of an objectively existing entity called ‘risk’ – and CRAs constantly get it wrong. If only regulators were willing to implement the proper rules, we would no longer suffer from CRAs’ blunders, so the suggestion (cf. Kruck 2016). Yet a different take on risk assessments – the social studies of finance (SSF) perspective that sees them as *performative* – makes this assumption highly questionable. Most importantly, performativity throws doubt on the idea that bold regulatory actions – such as the full removal of ratings from regulation, standardization of rating methodologies, or regulators issuing risk assessments themselves through a public CRA – would contribute to financial stability. In fact, the opposite might be the case.

4.3 The regulatory implications of performativity

4.3.1 Rating performativity

The financial system is reflexive: market participants’ assessments of the system’s functioning shape its functioning, in turn affecting participants’ assessments. Put differently, the two-way feedback loop between assessments and outcomes makes the system change under observation (Soros 2008; Beinhocker 2013; Bronk 2013; Esposito 2013b; Mügge and Perry 2014). This implies that financial markets have no firm anchor – the often-invoked fundamental values in the real economy – outside of actors’ assessments (Keynes 1964 [1936]; Minsky 2008 [1986]).

From this starting point, the SSF-literature investigates *which* and *whose* assessments matter and *how* they affect the system. MacKenzie’s (2004; 2006; 2011) seminal contributions focused on the performative effects of financial theories. Drawing on Callon (1998), he asserted that these theories, rather than passively recording an external reality, may act as an “active force transforming its environment” (MacKenzie 2006: 12). If a model has a high academic standing and is publicly available, market participants may start using it. The model then affects economic processes, but it may do so in different degrees. What MacKenzie labels ‘Barnesian performativity’ and ‘counterperformativity’ are the strongest forms. The first occurs when actors’ actions lead to outcomes that *confirm* the financial model’s assumptions: the world becomes more like the model. Counterperformativity is the precise opposite: over time actions lead to outcomes that conflict with the model’s assumptions (MacKenzie 2006; Bronk 2013).

Esposito (2013b) argues that SSF-scholars should not confine the study of performativity to financial theories but broaden the focus to include a variety of market practices and observations. Credit ratings are an important example (Esposito 2013a). There are several felicitous conditions (Svetlova 2012) why ratings can exert a key influence on financial market functioning. First, ratings’

visibility: the assessments are available for all to see, and the symbols are relatively easy to understand. Second, and related, they are *widely used*, also because of their inclusion in financial contracts and regulations. Third, CRAs' methodologies ensure ratings are relatively *stable* over time, making them a reliable focal point for (long-term) investors. Finally, there is *limited diversity* in ratings: the Big Three dominate the sector, and their rating approaches are quite similar. All this increases the chance that market participants' beliefs converge around CRAs' assessments, thereby strengthening ratings' real-world effects (cf. Deb et al. 2011).

As Svetlova (2012) rightly argues, widespread reliance on a model will not ensure a strong form of performativity. It crucially depends on market participants' calculative culture – whether they follow ratings blindly or whether they take them with a grain of salt. Yet ratings may be so hardwired in financial markets that individual actors act upon them even if they consider the dominant CRAs' ratings to be 'incorrect': as Sinclair (2010: 99) convincingly argues, "sceptical individuals have incentives to act based on the assumption that others will use the rating agencies as benchmarks", giving rating reliance a self-enforcing element (cf. Esposito 2013a). As such, ratings have performative effects: they influence the risks that they supposedly merely describe. Positive assessments trigger easy access to cheap credit, while downgrades can exacerbate the issuer's financial strains (cf. Kregel 2008; MacKenzie 2011; Mügge 2011a; Carruthers 2013; Esposito 2013a; Beckert 2016; see Paudyn 2013, for an extensive discussion of CRAs' effects on sovereigns; see Soudis 2015, for a critical take).

As the crisis made clear, ratings' real-world effects can contribute to the build-up of systemic risks (Sy 2009) – the risk of a "disruption to financial services that is caused by an impairment of all or parts of the financial system [...]" (International Monetary Fund [IMF] et al. 2009: 2). Particularly in case of financial innovations (think of structured finance products) or novel market developments (for example the introduction of the Euro), market participants look for anchor points to cope with the inherent uncertainty of future outcomes (Bronk 2013: 346). CRAs' optimistic assessments about a particular asset class or financial innovations can then become self-reinforcing, stimulating behavior that validates these assessments (Barnesian performativity) (cf. MacKenzie 2011). But as Minsky already pointed out, this self-reinforcing belief-behavior-belief feedback loop raises the fragility of the system, even though it appears increasingly stable (Borio et al. 2012). We can think of this as rating counterperformativity: initial optimism has sowed the seeds for subsequent panic. A minor event can be a breaking point and turn a boom into a bust (Gerding 2014). Rating downgrades and fire-sales then reinforce each other in downward spirals (Sy 2009).

4.3.2 Regulators' struggle with performativity

'Opening the black box of finance' exposed the *political* dimension of seemingly technical issues such as risk models (cf. MacKenzie 2004; De Goede 2004). Yet surprisingly, the SSF-literature has so far paid less attention to performativity's *regulatory implications* – and how regulators deal with these (Coombs 2016: 281). For example, while both De Goede (2004) and Paudyn (2015) discuss global regulators' embrace of private sector risk practices, they appear to discard the possibility that regulators *recognize* potential undesirable (performative) effects and the dilemmas associated with the various policy options. The literature mostly treats regulation as an *exogenous* factor (Coombs 2016), although this has more recently been changing. For example, Coombs (2016) tentatively concludes that regulation – in this case, the regulation of financial algorithms – can ensure benign forms of performativity. Similarly, Langley (2012) shows how US regulators' financial stress testing exercises were intentionally and successfully performative.

This study aims to contribute to this endeavor by focusing on how regulators deal with rating performativity. The message is quite sobering: banking and securities markets regulators struggle to tackle it. On the one hand, regulators hope that CRAs contribute to financial stability by providing relatively accurate risk assessments, allowing market participants to take precautionary measures. Indeed, regulators require banks, pension funds, insurers and asset managers to use ratings mainly to ensure prudent investment behavior. On the other hand, they dread ratings' systemic consequences (Sy 2009). But while these problems obviously exist, it is not clear what regulators can do to fix them. More significantly, bold regulatory actions aimed at the substance of CRAs' and firms' risk assessment approaches might be a cure worse than the disease. Put differently, regulators fear sweeping reforms will reinforce rating performativity and thereby increase systemic risks.

Performativity hampers regulators in tackling rating overreliance. Regulatory reliance on ratings is clearly problematic. It stimulates an automatic market response to rating changes and other market participants' anticipation of this effect can set-off feedback loops. But replacing ratings with other risk indicators may be equally if not more problematic. If this reinforces market participants' blind reliance on other, more volatile indicators, the performativity problem might become worse (FSB 2014). The solution to increase firms' discretion in risk assessment procedures also has downsides: especially for systemically important financial firms that tend to neglect long-term solvency to gain short-term profits or competitive advantage, abandoning microprudential stringency is unattractive (cf. Mügge and Stellinga 2015).

Even if regulators reduced regulatory reliance, ratings' systemic effects will not be eliminated. Market participants' rating use is not reducible to regulatory requirements. According to the former British financial market supervisor, "the use of ratings based investment and cash management rules by individual [...] institutions is entirely rational at the idiosyncratic level and it is very difficult to imagine how many institutions could operate without such decision rules" (FSA 2009b: 79). Although regulators can stimulate firms to rely on a variety of risk indicators, preventing them from using credit ratings is well nigh impossible, let alone desirable. An outright ban on rating issuance has many downsides, not least in that it could contribute to uncertainty and market stress.

Performativity similarly makes regulatory intervention in rating agencies' methodologies problematic. Because methodologies shape ratings, they clearly warrant regulatory attention. But regulators are not necessarily better at identifying appropriate methodologies than CRAs. Consider the main critique of CRAs' methodologies: they lead to ratings that are slow to respond to market signals (Partnoy 2009). CRAs aim to rate 'through the cycle' (TTC), meaning that ratings are usually relatively stable, contributing to their popularity among investors (and thus their performative effects). But this also means that stress levels can be building up for some time before CRAs finally reconsider their ratings, meaning that downgrades are usually abrupt and substantial (Gonzales et al. 2004; Dittrich 2007; Deb et al. 2011). This was the case in the Asian debt crisis of 1997-8, the subprime crisis of 2007-8, and the Eurozone debt crisis of 2010-2. But does this buttress the case for a regulator's prescribed shift to the alternative, 'point in time' (PIT) approach, that more quickly translates changing market signals in risk estimates? Not necessarily: ratings would still have performative effects, but as PIT-estimates are very volatile during market turmoil this could lead to even worse forms of instability (Gonzales et al. 2004; Hunt 2009).

As regulator approved or prescribed methodologies are not necessarily better than those of CRAs, regulators have good reasons to avoid substantive involvement. More importantly, prescribing methodologies could aggravate the problem it was meant to solve. Public vetting of methodologies could suggest ratings are officially approved, further bolstering market participants' reliance on them. And as ratings' systemic effects derive from the dominance of the Big Three, standardizing methodologies would increase ratings' homogeneity, thereby worsening the herding problem.

More diversity in ratings seems a promising way to mitigate the performativity problem. Systemic crises are often the result of a lengthy period of "cognitive myopia" (Bronk 2013: 348). Limiting

rating homogeneity is one way to address this, but also one that is fraught with difficulties. Given the systemic relevance of the Big Three's rating decisions, it is unlikely that smaller competitors employing different methodologies could by themselves provide a sufficiently strong counterweight, if only because their assessments would not remain unaffected by the Big Three's actions. This seems to warrant setting-up a public (or publicly sponsored) CRA. But while this might be a quick way to introduce a 'new voice', there is a danger that this voice might be heard all too well: market participants might exclusively rely on the public CRA's assessments, seeing them as official stamps of approval. By inducing herd behavior, this would reinforce systemic risks rather than mitigate them. Conversely, market participants could see public ratings as 'tainted' and ignore them, rendering the costly effort useless.

This certainly does not imply that policymakers just ignore these issues. They cannot: rating methodologies, the diversity of rating assessments, and the way in which ratings are used are all fundamental to financial market functioning. Moreover, regulators have had to live up to political and societal calls for bold actions, meaning there have certainly been reform attempts. However, once policymakers had to translate high-level requests to fix rating problems into actual reforms, they hit upon the inescapable performativity problem. The next section empirically shows how this has led to half-baked reforms, backtracking and regulatory indecisiveness. It discusses in detail the attempts to tackle rating overreliance, the regulation of CRAs' methodologies, and the failed initiative to set-up a public CRA, respectively.

4.4 Re-regulation and its limits

4.4.1 Reducing reliance on credit ratings

Market overreliance on credit ratings was a core cause of the global financial crisis (Sy 2009; FSB 2010; Deb et al. 2011). Policymakers identified regulatory reliance on ratings as contributing to market overreliance, thus reinforcing herd behavior. The FSF (2008: 38) therefore recommended that "authorities should check that the roles that they have assigned to ratings in regulations and supervisory rules [...] do not induce uncritical reliance on credit ratings".

A bold response would be to *fully* remove ratings from regulations. Proponents argued that this would reduce ratings' systemic effects, as both regulated entities and other market participants would pay less attention to them. It would also stimulate market discipline in the rating sector and thereby boost ratings' informational value (Weber and Darbellay 2008). But this solution immediately triggered other questions: should ratings be replaced with other risk indicators? Or

should regulators simply abandon the use of risk indicators in regulation and supervision? In both the EU and the USA, policymakers have struggled with these questions, and ultimately adopted half-baked – albeit different – solutions.

EU policymakers had only cautiously touched upon this issue during the negotiations on CRA 1 (2008-2009). The EC (2008b: 5) argued that “a one-size-fits-all approach need not necessarily be followed, as ratings are used in different contexts, with varying intensity and for different purposes”. However, the Eurozone crisis – which EU officials partly attributed to CRAs’ sovereign debt downgrades – heightened the urgency to diminish ratings’ systemic effects. The problem of rating overreliance was therefore a core aspect of the CRA 3 negotiations (cf. EC 2010).

But policymakers were confronted with a fundamental problem. What risk indicators (if any) can replace ratings? The main alternatives are indicators based on market prices – such as bond prices, credit spreads or the prices of credit default swaps. While some experts argue that these are more timely and accurate than ratings (Partnoy 2009), there are significant downsides. Even if particular market-based indicators are more accurate than ratings, this accuracy could become undone once they are used in regulation and more actors pay attention to them. More problematically, market-based indicators are more procyclical than ratings: in good times they indicate risk is low, but they become very volatile during market turmoil (Shin 2013).

Hardwiring such indicators in regulations could therefore lead to even worse forms of systemic instability (Hunt 2009). EU policymakers have thus opposed this policy route. UK authorities warned that “movements in market prices are driven by factors other than credit risk – such as the depth and liquidity of the market – and are prone to overshooting (procyclical effects)” (FSA et al. 2011: 5). The European Central Bank (ECB 2011a: 2) argued against “any automatic reliance of regulation on market-based variables. Market-based information may be excessively volatile and significantly misleading, for instance, during times of market dislocation”. In short, a bold solution to the rating performativity problem might introduce an even worse form of performativity, centered around more volatile indicators.

Alternatively, policymakers could stop using publicly designated risk indicators and leave it up to firms themselves. But giving firms much more discretion is obviously problematic from a (micro)prudential perspective (Carmassi and Micossi 2012). The Eurozone debt crisis showed that this strategy can be quite dangerous. EU politicians had not required any risk-sensitivity in capital charges for EU sovereign debt and left it up to the banks to decide how much to invest in particular government bonds – with disastrous consequences (European Systemic Risk Board 2015b).

Policymakers could also require firms to use their own risk models, with Basel's Internal Ratings Based-approach (the alternative to the Standardized Approach) as an example. But the financial crisis had also exposed major flaws in banks' risk models. And it would not necessarily reduce rating reliance, as banks' models often use credit ratings as benchmarks (Interview 20160603): "internal models are currently often linked back to CRA ratings or CRAs' default histories as external independent measures of risk" (FSA et al. 2011: 4).

Policymakers thus faced a dilemma. Replacing ratings with market-based indicators would substitute rating performativity for something worse. And leaving it up to the firms might reduce rating performativity but would introduce another systemic stability threat: firms' opportunism. A bold response would arguably make things worse, not better.

Given these major drawbacks, the EU opted for a very general policy goal: to reduce the extent to which market participants rely "*solely or mechanistically on credit ratings*" (CRA 3 – Article 5a; emphasis added). CRA 3 required European supervisory agencies no longer to refer to ratings in their guidelines or in their warnings "where such references have the potential to trigger mechanistic reliance" (CRA 3 – Article 5b[1]).⁹ But the Regulation did not require the full removal of ratings from Union Law. Although it contained the aspiration to do so by 1 January 2020, policymakers included an important disclaimer: "provided that appropriate alternatives to credit risk assessment have been identified and implemented" (CRA 3 – Recital 6). This has so far proved elusive.

While the CRA 3 required EU regulators to look for potential alternative risk indicators, the open-endedness of this assignment ensured a low-key follow-up. Although financial authorities consulted market participants and national authorities on their ideas on rating alternatives (cf. European Banking Authority [EBA] et al. 2014; ESMA 2015), this merely resulted in calls for further investigation rather than a thorough analysis and testing of identified alternatives. An EU banking regulator admitted that "*for the time being it is merely a stocktaking exercise [...]. The prevailing opinion is that at this point in time we cannot get rid of the external ratings anyway – it is kind of unrealistic*" (Interview 20160413a). This sobering conclusion was echoed by ESMA (2015: 36): "The process to reduce reliance on ratings [is] at an early stage, with some work done on agreeing high

⁹ Apart from ESMA, these are the European Banking Authority (EBA) and the European Insurance and Occupational Pensions Authority (EIOPA).

level principles and goals but more to be done in terms of mitigating mechanistic reliance and proposing alternatives”.

The EU focusses on market participants’ use of ratings: CRA 3 stated that they shall make their own credit risk assessment and shall not solely or mechanistically rely on credit ratings – a requirement subsequently incorporated in sector-specific legislation. This approach fails to substantially limit ratings’ systemic effects if there are no requirements to use alternative risk indicators. But regulators want to avoid this: *“I completely understand market participants asking supervisors: ‘If I cannot use ratings, what then should I use? Tell me and I will do it’. But this is very difficult. Are you going to say: ‘you should all use credit spreads’? No, because if everyone does this, you will get the same problem. Or worse”* (Interview 20160404). So, the EU decided that supervised entities may still use ratings, provided they have appropriate internal controls to ensure this is not blind reliance (Joint Committee of the European Supervisory Authorities 2016). This approach is congruent with FSB’s (2014: 2) warning that “[n]ational authorities and financial entities should guard against the temptation to adopt a small number of alternative measures for assessing creditworthiness in place of CRA ratings, which can result in substituted procyclicality and herd behavior”.

The EU’s approach was partly informed by the problems experienced by US regulators. The US Senate had taken a bold approach and obliged regulators to remove all rating references from Federal laws – subsequently incorporated in Section 939A of the Dodd-Frank Act of 2010 (Manns 2013). This being a political obligation, US regulators had to find a way to do this, but they struggled to find suitable alternatives. They therefore often simply removed rating references. But abandoning prudential stringency is dangerous – so how to square the circle? As an EU banking regulator reflects, the *“American regulators experience the Dodd-Frank prohibition as a problem. They think that ratings should actually continue to play a role, albeit a smaller one than before the crisis”* (Interview 20160316).

US regulators adopted a pragmatic solution: *“they found a way to continue using ratings while still complying with the law”* (Interview 20160316). They did so by sticking to the old language of ‘investment grade’ and ‘non-investment grade’ securities while remaining vague what this means. Regulators’ definition of investment grade – *“the risk of default is low, and the full and timely repayment of principal and interest is expected”* (Office of the Comptroller of the Currency [OCC] et al. 2013: 2) – gives no guidance, but this was deliberate. It ensured that firms could still use ratings, as they could plausibly claim that a high-rated entity implied low default risks and was

therefore investment grade. According to another banking regulator, the USA has thus only superficially reduced reliance on ratings: *“Is this a solution? Legally yes, because they don’t refer to external ratings. But they do not even define what investment grade is supposed to mean. It’s only a different presentation”* (Interview 20160413a). So, at first sight the US approach appears to be a major policy shift. In practice, however, regulators did not fully stop relying on ratings. As reflected by a CRA-representative: *“I am not convinced that the Americans have gotten to a place that is very different from where Europe is”* (Interview 20160413b).

So, the EU has, for the time being at least, given up on the agenda of reducing regulatory reliance on ratings (Interview 20160316; Interview 20160408a; Interview 20160413b; Interview 20160421). ESMA concluded that it may not be practical to remove all regulatory references, and that *“the focus of any future initiatives should be on the mitigation of mechanistic reliance on ratings rather than their removal altogether”* (ESMA 2015: 7). Work is still to be done in this respect: particular regulations – for example capital adequacy rules – still appear to induce mechanistic reliance (Interview 20160413a; Interview 20160421). But policymakers have great difficulty squaring the circle of combining stringency (regulatory use of risk indicators) with flexibility (preventing mechanistic reliance).

These half-hearted responses stem not so much from policymakers’ unwillingness to change course, but from a lack of *viable* alternative solutions. Regulators acknowledge that replacing ratings with other indicators would not solve the problem, and potentially make it worse. From a performativity perspective it makes sense to require diversity in market participants’ risk assessments, but regulators understandably fear the scope for abuse this flexibility offers firms. Effectively, policymakers see no way out of this conundrum.

4.4.2 Regulating rating methodologies¹⁰

Policymakers identified fundamental flaws in CRAs’ methodologies as a core cause of the structured finance debacle. These were therefore a focal point in post-crisis regulatory reform debates: *“the idea was that methodology was the key issue, because at the end what goes out, the triple-A or double-B or whatever, comes from a certain methodology”* (Interview 20160408a). But on which aspects of methodologies should policymakers focus? Should regulators take a bold approach and prescribe the methodologies CRAs should use? The eventual solution adopted in

¹⁰ Parts of this subparagraph also appear in a modified version in: Stellinga, B. and Mügge, D.K. (2017) ‘The regulator’s conundrum. How market reflexivity limits fundamental financial reform’, *Review of International Political Economy*, 24 (3): 393-423.

CRA 1 was to avoid public meddling with their content (Article 23) and concentrate on CRAs' procedures, instead (Article 8).

The EC consultation paper was vague on the issue of regulatory scrutiny of methodologies: while it made clear that the substantive requirements "do not interfere with the content of ratings" (EC 2008a: 3), it did not provide a similar provision for methodologies. This worried CRAs, who feared regulatory interference with their rating approaches (Standard & Poor's 2008; Interview 20160413b; Interview 20160422). But from the start, EU regulators had also been concerned about the idea of supervisors checking or even prescribing rating methodologies (Interview 20160408a; Interview 20160421). For instance, ESMA's predecessor – the Committee of European Securities Regulators (CESR) – argued that the "goal for a potential regulation should be the supervision/monitoring of principles and processes that a CRA undertakes to generate a proper rating rather than influencing the methodology a CRA uses" (CESR 2008: 3). The Committee of European Banking Supervisors [CEBS] simply stated that the Regulation "should not seek to regulate rating methodologies" (CEBS 2008).

Several problems fed regulators' opposition to interference, including major conflicts of interest (Interview 20160404; Interview 20160408). But the substantive challenges were central to regulators' skeptical stance: a rating methodology is *"about credit quality, which is something you cannot observe. Or not even test for the next cycle, of which we don't even know how long it is.... So all these things you cannot do with them"* (Interview 20160413a). As substantive involvement would unlikely improve rating quality, it would at best shift reputational risks towards the regulator, making it an unattractive policy option: *"as a supervisor you don't want to be held responsible for a particular rating. You don't want to suggest it has been approved by the supervisor"* (Interview 20160404).

The most fundamental problem, however, was that regulators' substantive involvement would not only fail to take away rating performativity but would likely reinforce it. As market participants' perception of ratings' importance is key to their performative effects, policymakers deemed explicit government endorsement undesirable. So UK authorities warned that "regulatory assessment or challenge of CRAs methodologies or models" exacerbate the risk that markets participants see ratings as having "an official seal of approval" (HM Treasury et al. 2008: 9-10). Moreover, if regulators were to prescribe a particular rating approach, this risked introducing even more homogeneity in ratings, boosting systemic risks. As an EU regulator puts it: *"[CRAs'] methodologies will always produce different results. Which in theory is even good. [...] [But] relying*

on the supervisors is relying on an even higher form of systemic risk. Because if the government is wrong, everybody is wrong” (Interview 20160413a).

Still, the fundamental importance of methodologies implied that regulators could not ignore the issue. While CRA 1 included a clause (Article 23) stating that public authorities “shall not interfere with the content of credit ratings or methodologies”, Article 8 introduced significant procedural requirements concerning the development, application, review and disclosure of rating methodologies. *“What you can do is a lot of supervision, checking the governance, the independence, the internal processes and so on...”* (Interview 20160413a; emphasis added). Despite this focus on procedural aspects, a key clause – Article 8 (3) – seemed to be directly concerned with the *content* of methodologies: CRAs “shall use methodologies that are rigorous, systematic, continuous and subject to validation based on historical experience, including back-testing”. The ambiguity this introduced has been a source of contention ever since, as it implied that ESMA would have to check whether CRAs’ methodologies conformed to Article 8 (3), without actually interfering with their content.

The issue emerged when, during the Eurozone debt-crisis, the EC (2011c: 3) proposed that a CRA modifying one of its methodologies “may only apply the new rating methodology after ESMA has confirmed the methodology’s compliance with Article 8 (3)”. ESMA itself, however, vehemently opposed this proposal, fearing that it might be seen as validating ratings or methodologies (Interview 20160421; Interview 20160422). The rule would have *“led to a sort of regulators-approved rating. You would get a triple-A rating that was seen by investors as being in some way ESMA-approved. That is not something you want to have”* (Interview 20160421). The proposal was eventually shelved; instead, CRA 3 required CRAs to *notify* ESMA of material changes to their methodologies. Key members of the European Council had opposed the Commission proposal (Interview 20160404; Interview 20160408a). According to an EU securities market regulator, this solution effectively freed ESMA from checking the substance of methodology changes: *“they left the issue to ‘notify in advance’, so the supervisor gets it in an official register. What are you going to do with it? You put it in a drawer”* (Interview 20160408a).

While regulators have not created substantive requirements for CRAs’ methodologies, they do subject them to supervisory scrutiny. Where to draw the line is difficult. Given the impossibility of assessing whether methodologies are ‘correct’ (cf. Paudyn 2013; Paudyn 2015), ESMA settles for checking whether CRAs consistently apply their methodologies and modify them in case of unexpectedly poor performance. This latter aspect of ‘methodology validation’ is controversial.

CRA's warn that ESMA's approach pushes them in the direction of quantitative rating approaches, which in their eyes contributes to rating homogeneity (Interview 20160414a). Regulators are sensitive to this argument: *"We want to prevent that market participants think that there is only one way of looking at credit risk. There isn't. So the rules aren't meant to... we want to have alternative opinions. So that means you cannot say that the methodology should contain 'this, and this, and this' or that there is one approach to validation"* (Interview 20160421).

Still, the subjectivity introduced by the qualitative nature of ratings is a mixed blessing for regulators. The upsides are that it buttresses rating heterogeneity and limits mechanistic feedback loops between market developments and rating changes. But regulators fear that CRA's emphasis on the qualitative aspect might be an excuse for poor conduct and an unwillingness to reassess ratings in a timely manner. So ESMA (2015) champions tighter standards for CRA's to check their own methodologies. CRA's should assess whether actual default percentages in different rating categories (so AAA, AA+, and so on) match their earlier expectations; if they do not, methodologies should be reviewed. Simultaneously, ESMA provides enough leeway to ensure that the rules do not oblige CRA's to *"automate their approach so that if a rating category exceeds or falls below their expectations, the CRA's should change their methodology / credit ratings mechanistically"* (ESMA 2016: 11). Hence, ESMA requires CRA's to draw conclusions from faulty expectations even if this does not predict the methodologies' future adequacy. But ESMA knows better than to become too closely involved in this domain.

Despite CRA's deeply problematical pre-crisis methodologies, policymakers have struggled to find a solution and ultimately adopted contradictory rules. Regulators acknowledge the inherent limitations of scrutinizing methodologies: *"It is the financial system that relies on these opinions [of the Big Three], and the models have to be good, but they will never be perfect anyway. So even if ESMA would have 200 quants checking every single input and every single output, it will not change very much"* (Interview 20160413a). The adopted rules reflect the regulator's dilemma: regulators know that substantive involvement will not solve the performativity problem and likely makes it worse, but neither can they afford to leave it completely to the CRA's.

4.4.3 Increasing diversity through a European CRA

If the structured finance debacle had not shaken EU's confidence in the rating sector, the Eurozone debt crisis certainly did. When the Big Three started downgrading Greece, Portugal and Ireland, angered EU-politicians stated they were behaving irresponsibly. EU Commissioner Barnier expressed his discontent in May 2010: *"It is not normal for these rating agencies to play such an*

important role and to be so few in number” (quoted in: EurActiv 2010). The financial turmoil once again exposed the dominance of the Big Three: *“even if they’re right or wrong it does not matter, if one of the major rating agencies downgrades one asset class or one country [...] this will have a systemic impact of some kind”* (Interview 20160413a).

The Eurozone crisis thus heightened attention to the systemic risks of the rating sector’s homogeneity, owing to its oligopolistic structure (cf. EC 2016c). In response, politicians floated the plan to set up a European CRA, to act as a counterbalance to the major agencies’ pessimistic perspectives. German Chancellor Merkel joined French President Sarkozy in expressing support for an EU CRA, stating that it could provide *“an understanding of basic economic mechanisms different from the existing agencies, more oriented towards ...[sustainability] of the economy and less on the short term”* (quoted in: Willis 2010). A strong European agency as an alternative to the big American CRAs had also been a long-standing wish of several fractions in the EU Parliament (Pagliari 2013: 220-221). Given high-level support for the idea, the EC was tasked to investigate this option in the third revision of the CRA Regulation (2010-2013).

A key issue was whether it should be a *public* agency. The EC (2010: 19) identified the ECB as a suitable candidate to issue ratings, or alternatively a new agency could be set up. While private actors such as banks or investors did not express much enthusiasm for either option (EC 2011a; European Banking Federation 2011b), they would unlikely be harmed in any significant way. They mainly seemed concerned whether they would be obliged to use these ratings (European Fund and Asset Management Association [EFAMA] 2011). The CRA-sector was divided on the issue: whereas Standard & Poor’s (2011: 9) warned that a public CRA would distort competition, Moody’s was much more supportive. Moody’s (2012: 4) argued that *“policy makers could neutralise private-sector credit rating opinions by introducing a public-sector voice to contribute competing views”*, and that this was mostly a *“matter of political will”*.

Yet precisely this political will was waning. The ECB opposed the idea of having to issue ratings, bluntly stating that *“[the] ECB should not issue public ratings to be used for regulatory purposes”* (ECB 2011a: 7). Governments publicly responding to the EC consultation (including the UK, France, and the Netherlands) warned for the significant downsides of a public CRA. What was the problem? Regulatory capacity was certainly not the most fundamental obstacle. As policymakers acknowledged, public sector bodies such as the ECB had intimate knowledge of the financial positions of sovereigns. Moreover, the ECB and multiple other EU central banks already had risk-

assessment departments (cf. EC 2015). CRA lobbying also fails to explain policymakers' hesitation: they were clearly divided on this issue. So where did this hesitation come from?

While politicians hoped to quickly increase the sector's diversity, policymakers realized that it was more likely that the public CRA would either attract too little or too much attention. If it was ignored because of being tainted by the "image of political interference" (The Netherlands Ministry of Finance 2011: 10), it would be a waste of money and fail to increase diversity. If, on the other hand, the EU CRA's ratings were seen as official stamps of approval on sovereign debt, it could lead to herd behavior around these indicators. According to a banking representative, this latter danger was evident if the ECB were to rate sovereign debt: *"If you have the ECB issuing ratings, why would anybody still listen to S&P? Why would you still listen to Fitch? Then you would have the ECB saying what is rubbish and what is not. So I can imagine this would have systemic effects on the markets"* (Interview 20160603). An EU CRA would not solve the performativity problem but could in fact lead to a worse variant. Despite the major dissatisfaction with the sector's oligopolistic structure, key public actors backed down.

The EC (2011c) thus did not propose setting up a public CRA, expressing skepticism regarding the feasibility thereof (EC 2012). But several fractions in the EU Parliament (EUP) seemed unshaken by the concerns voiced and kept the idea alive. EUP Vice President Pitella wanted further investigation of the feasibility of a European agency, for instance the European Court of Auditors or the ECB, issuing sovereign ratings (EurActiv 2011). EUP Rapporteur Domenici also tabled the idea (European Parliament 2012). A compromise seemed possible: the EU could (financially) support a European *private* agency. An EUP Motion (November 2011) had already called on the EC to investigate this possibility.

This option, however, also did not gain sufficient support, but now clearly for fear that it would not get *enough* attention. A failed initiative in Germany had not boosted confidence. In July 2011, the consulting firm Roland Berger tried to set-up a private rating agency that would be funded by both private and public actors, but it failed to gather enough financial support from issuers and banks (Der Spiegel 2012). When it asked the German government for help it was turned down: the idea of fully funding a CRA that eventually might not even get sufficient attention seemed very unattractive. This failure resonated in the EU: it challenged the prospect that a private European CRA would (eventually) be successful, making it unappealing to fund it with taxpayers' money (Interview 20160422).

The final CRA 3 Regulation (Recital 43) merely obliged the EC to submit a report on the desirability of setting up a public CRA or a European credit rating foundation. According to stakeholders, this was a way to shelve the issue: *“the European Commission eventually said ‘we will write a report on it’, which is usually a good way to get the discussion off the main stage”* (Interview 20160421). The submitted report (EC 2015) reiterated the key problem: it would either duplicate existing information (making it a waste of money), or it would get too much attention (making it potentially dangerous). According to the EC, it entailed *“the risk of creating over-reliance on a new alternative if relied upon by investors in an exclusive way”* (EC 2015: 18). Ultimately, policymakers did not dare go down that road. Once again, the potential harmful consequences of a substantive solution limited policymakers’ reform ambitions. The Commission therefore indicated it would not pursue the idea any further.

4.5 Conclusion

The global financial crisis made clear that ratings can contribute to build-up of systemic risks. Critics looked at governments to fix these flaws: regulatory rating references should be replaced by better indicators, CRAs’ methodologies should be vetted or prescribed, and public alternatives to the dominant CRAs should be set up. Actual reforms turned out differently: while some progress has been made in addressing CRAs’ integrity problems, there is a substantial gap between the magnitude of the identified systemic problems and the adopted solutions. Policymakers encourage market participants to also use other risk indicators, but they themselves still rely on ratings. Regulators introduced procedural requirements for CRAs’ methodologies but steered clear of their substance. And the public CRA that many deemed necessary was never set up.

There have been frequent accusations that this was because of regulators’ unwillingness to fix these problems, either because institutional path-dependence made it too costly, regulators feared private sector opposition, or they were reluctant to discard pre-crisis regulatory ideas. This chapter, in contrast, has argued that limited reforms stem from the impossibility to solve these systemic risk problems. These regulatory limitations are rooted in the performativity of risk assessments: CRAs cannot help but influencing the risks they purportedly only measure, and regulation cannot take this away. Crucially, policymakers feared that bold regulatory actions, such as prescribing rating methodologies, issuing ratings themselves, or requiring market participants to use market-based measures instead, would make things worse.

The limited post-crisis reforms need not necessarily constitute regulatory failure. Some policy problems defy straightforward solutions. This should not be interpreted as a defense of the *status*

quo ante, nor that half-baked reforms are necessarily conducive to the public good. Indeed, EU's lack of progress on requiring more diversity in firms' risk assessment practices is not without risks (Danielsson 2013). The dangers of mechanistic rating reliance may re-emerge once memories of the crisis fade, implying that continuous regulatory vigilance is imperative. But ultimately, there are limits to what regulators can do to fix rating problems.

Does this mean that regulation is futile? Not necessarily. The sobering conclusions should inspire alertness rather than nihilism. First, it requires regulatory efforts to prevent analytical monocultures. Performativity can turn into systemic crises when "all actors come to share the *same* or *similar* beliefs, narrative or modelling framework" (Bronk 2013: 346). To spot anomalies and potential sources of systemic risks, we need institutionalized 'self-doubt': organizations that provide alternative narratives to dominant conceptions of benign market developments. This may go some way in tempering future 'this-time-is-different'-delusions. Second, regulators should by all means attempt to address the underlying forces of such crises: abnormal credit growth (Drehmann et al. 2011). Tackling this phenomenon, even if it will not prevent crises, will at least ensure that once problems materialize and market participants' optimism gives way to pessimism, this will not again bring down the whole financial system. We will return to these policy implications in the final chapter.

In both the domain of financial instrument accounting and credit rating agency regulation, the reflexivity of financial markets hampers policymakers in designing rules conducive to stability. The following chapter will incorporate this point into a broader claim about post-crisis regulatory reforms: while reforms appear to be quite limited, this need not necessarily stem from regulators' unwillingness to fix the underlying stability problems, but more importantly from their inability to do so. Again, this stems from regulatory dilemmas caused by the reflexivity of financial markets. To make this argument, I will return to both the politics of accounting standard setting and credit rating agency regulation, but I will also focus more specifically on banking regulation. After the crisis, policymakers agreed that banking rules were woefully inadequate. In particular, many banks did not have enough liquid assets to meet funding problems, suggesting the need to design adequate bank liquidity requirements. Yet as we shall see, identifying the problem is only one step. Finding an appropriate solution is something completely different.