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The Mandate of the European Systemic Risk Board and Resilience as an Essential Component: Part 2
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Abstract
An article in JIBLR Issue 1, 2016 explored the macro-prudential mandate of the European Systemic Risk Board (“ESRB”) as set out in its founding regulation; assessed critically how it fits within the supporting rationales of financial supervision; and considered whether it should be redefined so as to reflect these rationales. It argued that in addition to prevention or mitigation of systemic risks, building the resilience of the financial system should be a core component of the macro-prudential supervisor’s mandate and, accordingly, should be clearly stipulated in the ESRB mission. This continuation article sets out the nature and key elements of resilience as developed in other disciplines and examines to what extent they are helpful in defining resilience in the sphere of macro-prudential supervision.

Introduction

An earlier article explored the macro-prudential mandate of the European Systemic Risk Board (“ESRB”) as set out in its founding regulation; assessed critically how it fits within the supporting rationales of financial supervision; and considered whether it should be redefined so as to reflect these rationales.1 It argued that in addition to prevention or mitigation of systemic risks, building the resilience of the financial system should be a core component of a macro-prudential mandate and, accordingly, should be clearly stipulated in the ESRB mission. This continuation article sets out the nature and the key elements of resilience as developed in other disciplines and examines to what extent they are helpful in defining resilience in the sphere of macro-prudential supervision.

In defining resilience in the sphere of macro-prudential supervision. Identifying those elements will assist macro-prudential policy makers in understanding the notion of resilience in this context either as part of their mandate or as part of their policy communications. More specifically, those identified features could form the basis, in the future, for a concrete and operational ESRB mandate.

After this introduction, the article will proceed as follows. The first section sets out the nature and key elements of resilience as developed in other disciplines and examines to what extent they are helpful in defining resilience in the sphere of macro-prudential supervision. It focuses on the adaptive approach to resilience as an attractive theoretical basis for resilience in the context of macro-prudential supervision. To provide a complete picture, the next section then critically analyses the relationship between resilience and other terms (such as vulnerabilities, fragility, volatility and robustness) often used by macro-prudential supervisors, including the ESRB, to explain their mandate and policy decisions. The third section moves from theory to practicalities and explores how bolstering resilience forms part of the ESRB intermediate targets and their corresponding macro-prudential tools.

The final section concludes with the inherent limitations of the ESRB’s mandate and suggests ways to enhance its effectiveness.

The meaning of resilience in the macro-prudential context

The absence of a clear definition of resilience in the context of the macro-prudential supervision sphere leads to a concern that its frequent use may become just a general metaphor for withstanding disruptive change in financial systems. Giving resilience a concrete substance and identifying its key elements would turn it into a benchmark that could hopefully guide policy decisions and form a basis for holding the macro-prudential supervisor accountable.

Interestingly, the scarceness of a substantive discussion of the meaning of resilience in the macro-prudential context2 is strongly contrasted with the burgeoning academic and policy attention given to it as an analytical concept in a large number of other disciplines. A viable option is therefore to turn to those discussions and definitions as a starting point for forming a clearer understanding of resilience in the context of macro-prudential supervision.3 However, it should be

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acknowledged that even this basis is somewhat shaky. The multitude of meanings attached to resilience across the range of disciplines suggests that its application differs widely from one discipline to another. 5 Macro-prudential supervision is no different in that sense and the use of the notion borrowed from other disciplines must be exercised with caution so as to “fit” the new context and its unique characteristics. 6

The aim of this section is, therefore, to extract the main features of resilience from other disciplines, particularly economics, and utilise them to form a clear conception of resilience in the macro-prudential supervision context. Identifying those key elements of resilience could hopefully guide policy makers in defining this term, either as part of a macro-prudential mandate, in general, and the ESRB, in particular, or as a key tool in achieving its intermediate objectives. 6

How is resilience defined in other disciplines?

Generally, resilience is defined in terms of the ability to recover quickly from the effect of an adverse incident, originating from the Latin resilire, “to leap back”. The Oxford English Dictionary exposes a more complex view of this concept and defines it as “the quality or fact of being able to recover quickly or easily from, or resist being affected by, a misfortune, shock, or illness”. Accordingly, resilience can be conceptualised through its three dimensions: the first is the ability to withstand the impact of the shock or reduction of the probability of a shock (“shock absorption” aspect), the second is the reduced consequences of the shock and lastly, the ability to recover quickly from a shock (reduced time to recovery). 7

An analogy to a viral infection provides an explanatory example for these aspects of resilience: a person who has been exposed to a virus can withstand the effect of the virus and not get ill at all because he/she has been immunised or if he/she does become infected they will not suffer any long-lasting consequences and will recover quickly from the illness. 8

The first two aspects of resilience (i.e. shock absorption and impact mitigation) fit well within the macro-prudential supervision sphere. The primary role of the ESRB as set out in its mandate is preventive. It is aimed at avoiding shocks in the first place or at least ensuring that the financial system withstands those shocks “gracefully” with the most modest negative consequences on the internal market and the real economy.

The latter form of resilience (i.e. reduced time to recovery) raises several issues in the context of macro-prudential supervision. First, in contrast to other disciplines, in the macro-prudential context the “normal” pre-shock state or path is not an identifiable graph. Rather it points to a state without “widespread financial distress”, where the financial system is able to efficiently perform its essential functions (primarily providing payment services, pricing and transferring risks, and/or allocating credit and liquidity). 9 Secondly, the “shock counteraction” aspect of resilience cannot be identified within the sole competence of the macro-prudential supervisor. This aspect of resilience largely depends on the cooperation between the macro-prudential supervisor and a recovery and resolution authority. Once a shock has had its impact on the financial system, mitigating its consequences and bouncing back (or as suggested below forward) within a relatively short period of time to “normal” depends not only on the cushions of capital and liquidity but also on clear and comprehensive recovery and resolution regimes. 10 Lastly and most importantly, the reduced recovery time from a shock to the financial system should entail not only recovery but also the ability of the system to adjust to the effects of shocks to which

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8 See the section below on the ESRB intermediate objectives and the reference to resilience.


14 In addition, when considering the recovery time, other fiscal and moral hazard implications need to be taken into account. Reduced recovery time via public-funded bail-outs comes at a cost and should be balanced against the benefits of recovering quickly from the shock. So in the financial system context, cost-benefit analysis of various policies has to be conducted when assessing resilience.
An adaptive resilience of financial markets

The conceptual theory of resilience has its roots in materials science. Later on, the theory was extended mutatis mutandis to a wide range of other disciplines such as social-ecological studies, engineering, organisational science and psychology. The theories developed for economic resilience are conceptually the most closely related to the macro-prudential context and therefore were chosen as a starting point to build a conceptual theory relevant to the debate in the macro-prudential supervision context. After all, the economic system is underpinned by the financial system and the two are intrinsically connected. Both can be contrasted with ecological systems and other physical sciences that, even though network based, are not induced by political and social factors. As such, “the odds on a 100-year storm do not change because people think that such a storm has become more likely.” The probability for a systemic risk is, however, undoubtedly influenced by perceptions and panic behaviour of market players.

Earlier studies from economic literature refer to resilience as the ability, in the face of shock, to return to a pre-existing state in a single equilibrium system (return of the system to the original steady state or growth path) or shift to a new state in multiple equilibrium systems. More specifically, it is concerned with the extent to which an economy is able to return to its steady level and/or growth rate of output, employment or population after experiencing an internal or external shock. Another related concept of resilience is the extent to which the economy avoids having its previous equilibrium state disrupted by an exogenous shock. This happens by avoiding the shock altogether or withstanding the shock with little or no adverse impact. Not surprisingly, however, even within economic theories there is disparity of views regarding the notion of resilience. An alternative view of resilience has emerged that departs from equilibria notions and is based on an adaptive or evolutionary concept. It sees resilience as the capacity to support a process of evolution of a system over time. For instance, the resilience of economic regions to uncertain changes, such as natural disasters and financial crises, has been more recently conceptualised based on the adaptive approach. It has been suggested that since economic regions are affected by human action they are always in transition, changing and adapting rather than being in a steady state of equilibrium. Furthermore, the nature of the unforeseen shocks that economic regions are subject to is often understood to be coupled with the unfolding long-term “slow burn” processes of change.

The adaptive approach to resilience of economic regions uses the contrast between the concepts of adaptation and adaptability to convey the nature of resilience. Adaptation is defined as the way in which agents respond, cope with and shape movements, in the short run, towards a pre-conceived path that proved successful prior to the shock. Adaptability, on the other hand, refers to the capacity to leave a path that may have proven successful in the past in favour of a new starting point to build a conceptual theory relevant to the adaptive nature of resilience in the macro-prudential context and therefore were chosen as a


17 J. Kamhuffa, S. Weidman and N. Krishnan, New Directions for Understanding Systemic Risk, 9.


trajectory. Most importantly, according to this approach, resilience of a system lies in its ability to adapt to shocks in a way that maintains the core functionality (“bounce forward”), rather than merely quickly re-bouncing to its previous state. Bouncing forward enhances the ability of the system to withstand or cope with future shocks. It is suggested here that given the nature of financial systems, an adaptive approach to resilience is the most compelling in conceptualising their resilience. To begin with, financial systems are both complex and adaptive or evolutionary. Complex—since it is difficult or impossible to predict accurately the overall system-level behaviour even when information is given on its individual components. In other words, the whole of a system is more than the sum of its components and is guided by their interactions. Adaptive—since a financial system derives not only from economic factors but also from social ones. It is dynamic, learns from experience, adjusts and evolves its response over time. As such, the response of a financial system to a shock (whether exogenous or endogenous) in itself may change over time.

The adaptive nature of financial markets is not a new paradigm. The Adaptive Market Hypothesis (“the AMH”) that was developed by Lo in 2004 brought together the traditional efficient market hypothesis and other behavioural theories. In contrast to efficient markets, where market environment is stationary and investors do not make mistakes, in the AMH market mistakes frequently occur but market players learn from them and adapt their behaviour accordingly. It was suggested that, similarly to species evolution, the adaptation nature of financial markets is driven by competition, i.e. “the push for survival”.

The main mechanism through which financial systems adapt is innovation of new financial instruments, new practices and new forms of intermediaries. Following this, the structure and operations of financial markets may also change over time. For instance, the importance of traditional banking activities in financial systems has generally been in decline in recent years while intermediation of non-banking financial institutions, such as hedge funds, has been on the rise. Indeed, theories of financial innovation have long moved away from viewing innovation as a by-product of regulation and supervision. This narrow approach was replaced by seeing innovation as a means to lessen financial constraints imposed on institutions, whether they be exogenous or endogenous.

In the same vein, talking about “building up the resilience of financial systems” in the macro-prudential supervision context has to take into consideration their adaptive nature. The resilience of the financial system during crisis reflects a long-term adaptive process in response to “slow burn” challenges (as well as abrupt ones) and allows for varying degrees of changes while maintaining its core functionality and performance. The key functions and performance of the financial system are to be differentiated from its operations and structure. The adaptive approach acknowledges and even embraces changes in the latter whilst preserving the former. As such, resilience would mean that in the face of shocks (whatever their nature and origin may be) the financial system would continue to assess, price, allocate, and...
manage financial risks while facilitating the performance of an economy. At the same time, a resilient system will be able to bounce forward and make the necessary changes so as to retain those key functionalities.

In the macro-prudential context, the changes that are triggered by shocks (abrupt or slow burn) should be widely interpreted. They could be self-corrective or market disciplining changes, i.e. initiated by the financial actors or investors (for instance, searching for higher or lower yields through different vehicles). They could also be man-made changes facilitated by regulators and supervisors (for instance, changes in the legal framework or infrastructure). The aim of macro-prudential supervision should be to facilitate those changes, either by enabling the market to self-correct or by imposing a legal framework for that purpose.

To draw a complete picture of resilience in the context of macro-prudential supervision, its interrelation with interconnectedness and diversity should be explored. These factors are often used to gauge the levels of resilience in systems with adaptive nature. On one hand, increased interconnectedness within a financial system tends to reduce the adaptability of the system to changes making it more structurally and functionally rigid and prone to contagion. On the other hand, greater connectedness allows for greater diversification of exposures across financial institutions that in turn enhances resilience. Moreover, secured linkages through common membership in payment, settlement and clearing systems can eliminate counterparty uncertainty and boost the overall resilience of the financial system. The “ideal” adaptive nature of a resilient financial system lies somewhere between those poles.

Mirroring the relation between resilience and connectedness, diversity also plays a key role in determining the level of resilience in financial systems. Diversity is a multifaceted notion. First, it connotes not only variety of institutions but also a variety of markets, activities, strategies and models. Secondly, diversity in one area does not necessarily imply diversity in other areas. For instance, the global financial system has gradually provided for greater diversification in investment, via new financial products and new platforms. However, this did not lead to reduction in risks. On the contrary, it contributed to the loss of heterogeneity in business and risk management strategies and, consequently, build-up of systemic risks.

Macro-prudential policy-making therefore involves balancing between connectedness, on the one hand, and diversity on the other. Nevertheless, these may not be the sole factors in bolstering the resilience of the financial system. Redundancy and modularity are often listed as characteristics of resilience. Redundancy is the ability of one component of the system to perform another’s function. In the absence of redundancy, the loss of one component could mean emergence of systemic crisis.

In the macro-prudential context, substitutability (or a broader term of “importance for the economy”) is one of the criteria used for identification of Systematically Important Financial Institutions. Though differently termed, substitutability also means the extent to which other components of the system can provide the same services in the event of a failure. Moreover, strong resilience often suggests modularity capabilities. Modularity refers to the compartmentalisation of the system, i.e. the ability of the system to close off some of its functions from the rest of the system.

38 These legal frameworks and infrastructural architectures are also part of the financial system. Y.T. Marsu, “Resilient Regions: Clarity of Concepts and Challenges to Systemic Measurement” (2010) Socio-Economics and the Environment in Discussion Working Paper Series, No.4 from CSIRO Sustainable Ecosystems, differentiating between “outside help” and resilience of the system. Indeed the G20 members in the “global plan” used the word “adapt” to convey the need for regulations, requiring to “review and adapt” the boundaries of their regulatory frameworks regularly to keep pace with developments in the financial system and promote good practices and consistent approaches at the international level (G20, The Global Plan for Recovery and Reform, 2 April 2009). See D.W. Armer, “Adaptation and Resilience in Global Financial Regulation” (2011) 89(5) North Carolina Law Review 1579.
45 On one hand, greater connectedness allows for greater diversification of exposures across financial institutions that in turn enhances resilience. Moreover, secured linkages through common membership in payment, settlement and clearing systems can eliminate counterparty uncertainty and boost the overall resilience of the financial system. The “ideal” adaptive nature of a resilient financial system lies somewhere between those poles.
its parts and allow the components to interconnect. 49 Financial systems can clearly benefit from modularity mechanisms, such as fire breakers. 50 However, modularity in the context of financial systems also has a significant downside. Where the component is systematically important, modularity may not be beneficial from a system-wide perspective. Moreover, modularity has the tendency to increase the risk that individual elements within the system will be critically damaged. 51 This inherent tension can be widely observed as the tension between macro-prudential and micro-prudential supervision. While modularity could be beneficial from a system-wide perspective it can lead to failures of individual institutions that should have been “saved” from the micro-prudential supervision perspective. 52 It is therefore essential to consider all the relevant factors and weigh them together to reach a balanced outcome that enhances resilience.

For instance, where redundancy is weak (or where a financial institution is systematically important inter alia due to its lack of substitutability) modularity may not be beneficial from a macro-prudential perspective and could actually increase systemic risk.

Resilience: In what way is it related to vulnerabilities, fragility, volatility and robustness?

When referring to the ESRB regulatory and policy documents, a bewildering amount of terms can be found alongside resilience, ranging from vulnerabilities, fragility and volatility to robustness. 53 Those terms, primarily derived from other social-ecological disciplines, are too often used interchangeably by policy makers in a vague way to signify possible systemic problems in the financial system. It is therefore imperative to reflect critically on the meanings of those concepts, their relation with resilience and the way they can be used to implement macro-prudential supervision. Are there any nuances in the meanings of these concepts or are they just synonyms to “build-up of systemic risks”? Are there any special considerations that should be taken into account when using them in the context of macro-prudential supervision?

To begin with, resilience of the financial system should be contrasted with its vulnerabilities. Generally, both terms are concerned with how the financial system responds to shocks. 54 Vulnerability signifies the propensity or predisposition of the financial system to be adversely affected. 55 They refer to inherent features of the financial system, which contribute to the potential for widespread financial externalities and essentially make the system prone to shocks. 56 Therefore, at first approximation, resilience can be seen as an inverse of vulnerability. However, to be more accurate, they should be described as lying on a spectrum. High levels of vulnerability indicate a low resilience, and vice versa. Moreover, since resilience of a financial system encompasses its capacity to adapt, a resilient system has the capability to modify its circumstances so as to move to a less vulnerable condition. 57 This means that resilience adds a time dimension: a financial system will be resilient when, across time, it is less vulnerable to shocks and has the ability to withstand or adapt to them whilst maintaining its key functionalities. 58 Volatility, another term frequently used in macro-prudential policy circles, refers to the degree to which prices vary over a certain length of time. 59 It is generally an inherent part of a well-functioning financial system and does not necessarily imply emergence of...
systemic risks. However, empirical studies suggest that periods of financial instability (or systemic risks that have materialised) are nearly always associated with greater market volatility.

The term “financial fragility” provides the link between the two previous terms: vulnerabilities and volatility. In line with other terms used in this area, there is no universal definition of “financial fragility” however it generally notes how vulnerable the financial system is to liquidity runs. It has been suggested that financial fragility is a situation where a “small aggregate shock in the demand for liquidity leads to disproportionately large effects in terms of default or asset-price volatility”. The more resilient a financial system the less fragile it will be.

Finally, in numerous policy documents the ESRB has referred to the need to build a robust financial system. The term robustness originates from network science and means the ability of a network to continue functioning even when its nodes (a set of individual elements) or its edges (links between the nodes) are removed. In financial markets, nodes could represent countries, sectors or financial institutions while the edges represent the links between them, such as financial transactions or mutual exposures. Using this terminology, a financial system would be robust if it withstands the failure of its individual financial actors, markets or infrastructures.

Aiming at robustness means focusing on ensuring the system is fail-safe within an uncertain environment. In contrast, resilience, widely interpreted, means bouncing forward (adapting and making the necessary changes to maintain its key functionalities). It can, therefore, be observed that robustness is a narrower concept than resilience (though it is not necessarily nested within it).

From theory to practicalities: bolstering resilience as part of the ESRB intermediate targets and its corresponding macro-prudential tools

The work of the ESRB is guided by five non-legally binding intermediate objectives that have been developed by the ESRB interpreting its statutory mission. In other words, they are the operational specifications of the ESRB ultimate objective as laid out in its mandate. The intermediate objectives comprise the mitigation and prevention of systemic risks that may arise from: (1) excessive credit growth and leverage; (2) excessive maturity mismatch and market illiquidity; (3) direct and indirect exposure concentrations; (4) misaligned incentives with a view to reducing moral hazard; and (5) strengthening financial infrastructures. The intermediate objectives correspond with specific market failures and their resulting negative externalities and, as noted earlier in the article, form the basis for the rationale of macro-prudential supervision.

It is desirable for the ESRB to work with intermediate targets for three reasons. First, monitoring and analysing factors based on intermediate targets will serve as an early warning for detecting vulnerabilities or systemic risks before they materialise and would make the ESRB macro-prudential policy more operational. In addition, these intermediate objectives will provide the ESRB with a clearer basis for choosing the most efficient and effective macro-prudential tools to achieve the ultimate goal as set out in its mandate. In turn, they would contribute to the transparency and enhance the accountability of the ESRB providing for a concrete benchmark against which its actions are judged. Secondly, since the intermediate objectives are not part of the ESRB statutory obligations they can be periodically reviewed and adjusted whenever necessary and, in particular, where the emergence of risks to financial stability is not sufficiently addressed within the current framework.

Thirdly, and the most relevant to the theme of this article, in the absence of reference to resilience in the ESRB core mandate, the specific inclusion of it in the intermediate targets for three reasons. First, monitoring and analysing factors based on intermediate targets will serve as an early warning for detecting vulnerabilities or systemic risks before they materialise and would make the ESRB macro-prudential policy more operational. In addition, these intermediate objectives will provide the ESRB with a clearer basis for choosing the most efficient and effective macro-prudential tools to achieve the ultimate goal as set out in its mandate. In turn, they would contribute to the transparency and enhance the accountability of the ESRB providing for a concrete benchmark against which its actions are judged. Secondly, since the intermediate objectives are not part of the ESRB statutory obligations they can be periodically reviewed and adjusted whenever necessary and, in particular, where the emergence of risks to financial stability is not sufficiently addressed within the current framework.

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targets allows the ESRB to bring it in through “the back door”. The downside of this arrangement is that the resilience target in the intermediate objective is still subject to the overarching umbrella of prevention or mitigation of systemic risks in the ESRB mandate.

As argued in Pt 1 of this article, given the various dimensions of systemic risks, building up the resilience of the financial system is conceptually distinct from systemic risk prevention or mitigation and hence should form a separate element in the ESRB mandate rather than an intermediate target.

Despite this conceptual shortcoming, the intermediate objectives provide a clearer benchmark for choosing and implementing macro-prudential tools by the ESRB, through the Member States’ national macro-prudential supervisors. Generally, the tools assigned to the first two intermediate targets (i.e. excessive credit growth and leverage and maturity mismatch and market illiquidity) address the time-varying dimension of systemic risk. Financial intermediaries have a tendency to assume excessive risks during booms and then to be overly risk averse during the bust. This tendency reveals itself through cyclical movements in the leverage and maturity mismatch positions in the financial system, i.e. through credit and liquidity cycles. The cyclical tools primarily operate on the balance sheet of financial institutions and/or affect the terms and conditions on their financial transactions. Conversely, the last three intermediate targets primarily address the cross-sectional dimension of systemic risks. This dimension refers to the distribution of risk across the financial system at any point in time and hence has a key role to play in building up the resilience of the financial system. Laying out the potential “cross-sectional tools” assigned to the ESRB intermediate targets will assist in forming a more concrete understanding of the concepts developed in the previous sections and the meaning of resilience as a key pillar in macro-prudential supervision.

Before turning to discuss the potential tools, it is important to distinguish between the primary aim of these macro-prudential tools and their resulting effects that take place through various transmission channels. It is commonly agreed that most cross-sectional tools aimed at building up the resilience of the financial system will also prevent the build-up of systemic risks and vice versa. Indeed the terms “building up resilience” and “preventing build-up of systemic risks” are inextricably used in academic and policy documents as rationales for the potential macro-prudential tools. However, the distinguishing factor should be in that those tools primarily address the cross-sectional dimension of systemic risk (and hence build up resilience) while other tools primarily address the cyclical dimension (and hence prevent the build-up of systemic risks). Indeed all tools may eventually (directly or indirectly) result in an impact on both dimensions of systemic risk, however the distinction will ensure an equal focus on them:

- The first “cross-sectional” intermediate objective of the ESRB is to limit both direct large exposures to the financial sector and to the non-financial sector (such as sovereign or the housing market) and indirect ones resulting from interconnectedness of financial institutions and their common exposures. This can be achieved by imposing a cap to reduce exposure to specific financial sectors and/or asset classes. Other capital based instruments can increase banks’ loss absorption capacity, thus increasing resilience (such as systemic risk buffer and conservation buffer). In addition, a macro-prudential supervisor can introduce a requirement for certain financial transactions to be cleared through central counterparties and mandate the use of other trading venues (including “circuit breakers”) for particular securities and derivatives.
- The second “cross-sectional” intermediate target is aimed at correcting the perception that certain financial institutions are too systemic to fail. This perception may result in misaligned incentives and moral hazard. Limiting this phenomenon could be achieved through identifying Systematically Important Institutions (“SIIs”) and subjecting them to additional capital buffers (systemic risk buffer, conservation buffer) and liquidity requirements. Applying measures regarding compensation structures that provide incentives for risky behaviour or requiring market participants to “keep skin in the game” are other potential tools to align incentives.
- The last intermediate objective is particularly aimed at strengthening financial infrastructures as a key component of financial systems. The potential tools to achieve this objective include the introduction of targeted increased reporting requirements that could limit potential

74 e.g. building capital and liquidity buffers during boom so that they can be drawn down during bust can be said to build-up the resilience of the financial system. Similarly, margins and haircuts aimed at strengthening financial infrastructures deal with their procyclical behaviour. Macro-prudential Stance on Eligible Collateral for Central Counterparties in response to a consultation by ESMA—Accompanying document to ESRB/2012/3, Frankfurt 31 July 2012.
75 Circuit breakers halt trading in response to abnormal price volatility.
uncertainties regarding exposures and interconnectedness. Imposing requirements on margin and haircut on CCP clearing can also ensure that systemic implications are taken into account in setting them and limit the over-reliance on credit rating agencies. Macro-prudential supervisors can impose structural systemic risk buffers aimed at preventing and mitigating structural risk that stems from changes in legislation or accounting standards, financial innovation or spillovers from the real economy.

The wide-ranging non-inclusive potential macro-prudential tools aimed at the cross-sectional dimension of systemic risk points to the need to form a clear mandate to address this dimension. This can be achieved through the inclusion of a resilience objective in the ESRB mandate. At the very least, the use of resilience in policy rhetoric should not be limited to a general concept of stability, but rather should take a concrete meaning, as suggested earlier in this article, which could provide a clear benchmark for assessing the ESRB’s performance. Thus far, it seems that the ESRB is focusing on the time-varying dimension of systemic risk. Since the ESRB relies on the national supervisors as its proxies in promoting and implementing macro-prudential tools, the omission leaves infrastructures vulnerable to shocks. For instance, following the 2007–2008 financial crisis the G20 has committed to centrally clear standardised OTC derivatives contracts primarily to mitigate counterparty credit risks. At the same time, it implied a significant increase in the role and systemic relevance of CCPs and possible contagion across CCPs that clear the same products. The ESRB has been actively involved in the legislative process but none of its recommendations or reports addresses this risk and strengthens the resilience of those infrastructures. So far, a similar bleak picture can be found with regard to Systemic Risk Buffer.

Conclusion

Part 1 of this article established that the rationality for the ESRB mandate largely rests on the need to ensure that negative externalities arising from market failures are internalised. These externalities take various forms and propagate through multiple, at times simultaneous, channels ranging from fire sales to connectedness and informational failures. The ESRB mandate targets these negative externalities through prevention or mitigation of systemic risks to financial stability. The advantage in articulating the mandate in terms of systemic risks, rather than the overarching concept of financial stability, is that it offers a relatively observable measure of widespread instability that can be captured by various indicators. Measuring systemic risks allows the ESRB to assess the movement along the “financial stability continuum” and to ensure that the financial system (and, in turn, the real economy) stays within the accepted stable boundaries. What is considered “accepted” is the core of the macro-prudential supervision policy-making.

The ESRB mandate, however, is not comprehensive. The article suggests that building up the resilience of the financial system should be an essential and separate element in the ESRB mandate, alongside prevention and mitigation of systemic risks. Inclusion of resilience in its mandate would enable the ESRB to address fully the multidimensional character of systemic risk and the corresponding pillars of macro-prudential supervision (conjunctural and structural). While the intermediate objectives of the ESRB comprise resilience as a key component, this solution is not satisfactory since intermediate objectives do not have a binding legal force. They interpret that statutory mandate and, therefore, still fall under the umbrella of prevention or mitigation of systemic risk. Even once the first hurdle is overcome and resilience is considered a complementary and equal ingredient to prevention or mitigation of systemic risk, because of the multiplicity of its meanings associated with vast domains of application, what it means for a financial system to be resilient or vulnerable is not always clear. This article provides a first stepping-stone in filling this gap and highlights the key features of resilience in the context of macro-prudential supervision. This could hopefully promote the transparency of ESRB policy decisions and enhance the efficiency of its statutory accountability mechanisms. It is contended that resilience in the context of macro-prudential supervision should be widely interpreted to acknowledge the complex and adaptive character of financial systems. A resilient financial system is a system that is able to absorb shocks with little or no impact or to bounce forward to adjust to them while maintaining its key functionalities. The shocks that financial systems face could be abrupt or slow burning and the changes that they ignite in the financial system could originate from the markets’ self-correcting forces or be imposed by regulators and supervisors. As such, changes in functions and structure of financial system are part of its adaptive process (or bouncing

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71 Macro-prudential Stance on Eligible Collateral for Central Counterparties in Response for a Consultation of by the ESMA—Based on art.46 of the EMIR Regulation, Accompanying document to ESRB/2012/3, Frankfurt 31 July 2012.
72 According to the “ESRB Review of Macro-prudential Policy in the EU One Year After the Introduction of CRD/CRR, June 2015” almost 9 out of 10 of the macro-prudential measures identified in the EU during the period under review are aimed at mitigation and prevention of excessive credit growth and leverage, see Chart 2 on p.11. The review suggests that the framework of intermediate objectives is still in the early stages of implementation and may be subject to further development.
73 This is termed CCP’s interoperability arrangements.
74 See the ESRB Macro-prudential Commentaries Issue 6, 28 January 2013. This issue was also mentioned briefly in the ESRB General Board Minute on 23 December 2014, however no action was directed for that purpose.
75 That was only mentioned briefly (“urges to consider”) in the Introductory Statement of the ESRB Chair before the Committee on Economic and Monetary Affairs of the European Parliament on 23 March 2015.
forward) in the face of shocks. Drifting away from a narrow “equilibrium conception” of resilience towards a dynamic one enables a more comfortable transfer of the term to financial systems that fits its unique features.