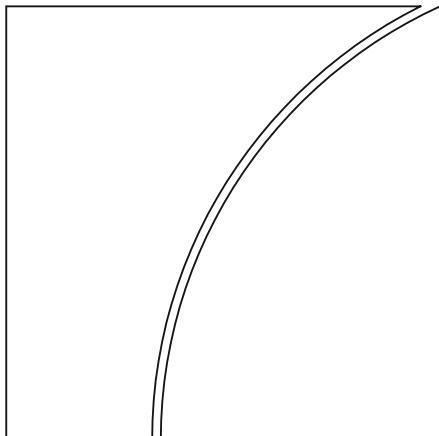


Financial Stability Institute

Occasional Paper No 19



Entity-based vs
activity-based regulation:
a framework and
applications to traditional
financial firms and
big techs

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August 2022

JEL classification: G18, G28, G32.

Keywords: financial stability regulation, activity-based,
entity-based, level playing field.



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Abstract

We propose a framework for classifying regulatory measures with a financial stability objective as activity-based (AB) or entity-based (EB). AB measures constrain an activity on a standalone basis, whereas EB measures constrain a combination of activities at the level of entities. Since such combinations underpin much of financial intermediation, financial stability regulation features EB measures at its core, even though its ultimate objective is to make financial activities more resilient. In discussing the relative merits of AB and EB measures, we apply our framework to the regulation of banks, collective investment vehicles and big techs. When addressing systemic risk, neither AB nor EB regulation need be consistent with a level playing field, contrary to a widely held view.

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Entity-based vs activity-based regulation: a framework and applications to traditional financial firms and big techs¹

Section 1. Introduction

The policy debate about the relative merits of entity-based (EB) and activity-based (AB) financial regulation is a long-standing one (US (2010), FSB (2011)). It has recently come to the fore again, mainly due to the greater systemic importance of non-bank financial intermediaries after the Great Financial Crisis (FSB (2017), IAIS (2019), Carstens (2021)). Non-bank financial intermediation has grown to account for roughly half of global financial assets and played a key role in the financial turmoil of March 2020 (FSB (2020)). The foray of big techs into financial services and the digitalisation of finance have fuelled the debate further (Carstens et al (2021)). When choosing the proper form of regulation for enhancing financial stability, the stakes are not trivial.

However, the debate has been muddied by the imprecise use of the EB and AB terms. This imprecision has made it more difficult to interpret catchphrases such as “same risk, same regulation” and “same activity, same risk, same regulation” – slogans that owe their popularity to their deceptive simplicity, but which say more about the desirability of a level playing field than about the general merits of alternative types of regulation. In seeking to clarify the debate, we propose a framework for classifying regulation as EB or AB. We focus on regulation with a financial stability objective.²

There are four main takeaways:

- **Basics.** Financial stability hinges on the resilience of financial *activities* that sustain the real economy – eg lending, deposit-taking, insurance underwriting, investing, trading, clearing and payments. *Entities* are the entry point of *all* regulatory measures.
- **Definitions.** AB regulation strengthens the resilience of a systemically important activity *directly*, by constraining entities in their performance of that *activity alone*. EB regulation strengthens the resilience of activities *indirectly*, by imposing restrictions on their *combination* at the level of entities. It reduces the likelihood and repercussions of the failure of entities, defined to include, besides insolvency, any other disruption to the entities’ functioning that may affect financial stability.
- **Suitability.** There is a case for AB regulation when (i) an activity can fail even if the entities performing it do not and (ii) it is feasible to constrain this activity in isolation. By contrast, EB regulation helps prevent systemic events due to *entities failing* in the performance of a *combination* of activities. Since such combinations – notably, in the form of leverage or maturity transformation – are essential to much of financial intermediation,³ *EB measures sit at the core of financial stability regulation*.

¹ The views expressed are those of the authors, not necessarily those of the Bank for International Settlements. The authors thank Fernando Restoy for insightful discussions on this topic and John Caparuso, Jonathan Dixon, Neil Esho, Marc Farag and Ulf Lewrick for valuable comments on an earlier draft.

² Financial stability regulation is often referred to as “prudential regulation”. However, this term is often understood to refer only to bank regulation or to regulation that targets the soundness of individual institutions. Our discussion encompasses any regulation that contributes to the resilience of the financial system. Other essential types of regulation remain out of scope, eg consumer or investor protection, anti-money laundering, anti-terrorist financing, data governance and market dominance/competition objectives.

³ Restoy (2019) stresses that, when the regulatory objective is financial stability, it is essential to consider entities’ various activities on a consolidated basis.

- **Prioritisation and level playing field.** Within the EB and AB categories, it is useful to distinguish between micro- and macroprudential (MiP and MaP) measures. When of a MaP nature, an EB or an AB measure should impose stricter constraints on entities of greater systemic importance. Thus, not just EB but, *contrary to a widely held view, AB regulation too need not be consistent with a level playing field.*

The note is structured as follows. By way of prologue, the first section briefly recalls the relationship between three key elements of the financial system – functions, activities and entities – and defines financial stability and “failure”. The second provides definitions of EB and AB regulation. The third considers conditions under which the pursuit of financial stability calls for using either EB or AB regulation. It also discusses when it is optimal to implement measures of each type in tandem, so that they reinforce each other. The fourth relates the EB and AB classifications to the MiP and MaP dimensions of regulation. The fifth applies the framework, first to the regulation of collective investment vehicles – such as money market mutual funds or open-ended bond funds – and then to that of big techs. The last section concludes.

Section 2. The financial system

2.1 Functions, activities and entities

The financial system performs essential *functions* for the real economy. As examples, Merton (1995) refers to identifying and supporting valuable investment projects; providing signals for an efficient allocation of resources; monitoring the use of those resources; and managing risks and uncertainty. These functions involve pooling funds, diversifying risks and engaging in risk transformation.

The authorities cannot regulate functions directly, as these are too general and abstract; but they can regulate *activities*, ie the provision of a financial service. Examples include payments, credit extension – lending and borrowing, through institutions or markets – deposit-taking, trading and investing, derivatives clearing and insurance underwriting. Our focus is on financial activities that are essential for the real economy, ie systemic.

Regulation requires “entry points”, ie agents whose behaviour can be constrained. These must be *entities* with a legal identity. The most natural entry point is the firms performing the activities, eg payment service providers, banks, securities firms, asset managers, exchanges, central clearing counterparties (CCPs) and insurance companies. Another entry point could be the users of financial services, including physical persons. For instance, only users with certain characteristics may be allowed to access certain services (eg home owners obtaining mortgages). Even in this case, however, compliance with the rules would fall mainly upon service providers (eg to enforce loan-to-value (LTV) limits or restrict complex instruments to institutional investors). Thus, we will henceforth use the term “entity” to denote the provider of a *financial* service.

2.2 Fluidity

A unique feature of the financial system is its extraordinary “*fluidity*” which blurs the mapping between financial instruments, activities and entities.

Fluidity arises at the level of instruments. Financial instruments’ characteristics – such as payoffs, maturity, collateral, control rights, market and trading venues – may vary along a seamless spectrum. This also means that various instruments may provide the same or very similar services to the user. Payoffs on financial claims – whether fixed (eg a bond coupon) or contingent (eg return on a share or option) – may be replicated using other instruments (eg by transacting dynamically). Similar claims may be transacted mainly on primary markets (eg bank loans) or secondary markets (eg CDS contracts). And services

performing similar functions can be supplied through non-transferable bilateral contracts (eg property insurance) or through markets (eg catastrophe bonds).

Fluidity is also a feature of financial entities and activities. Identical or very similar activities can be performed by different entities. For instance, a firm may borrow from a bank, insurance company, pension fund or obtain trade credit from another firm. Conversely, entities can combine the same or similar activities very differently. Think, for instance, of the obvious differences between commercial banks, investment banks and insurance companies, just to mention a few. Overlaps abound. Indeed, the very boundaries of the financial system are blurry and ill-defined: some non-financial firms supply services that are financial in all but name.

Importantly, this fluidity makes *the very identification* of an activity context-dependent and blurs the mapping between activities and an entity's balance sheet. Bank deposits are used in payments. But they are just one element of the overall activity, which also includes arrangements for the transfer of funds (eg the use of debit and credit cards). Moreover, bank deposits are also a form of debt. So, deposit-taking relates to two different activities – payments and borrowing. Further, borrowing and equity issuance are alternative types of funding – yet another activity that, in turn, is essential for the lending activity.⁴

At the same time, despite all this fluidity, *financial intermediation* exhibits one recurrent feature: by its very nature, it tends to *combine activities*. This is mainly because (various forms of) lending or investment require (various forms of) funding. Importantly, combinations of activities are behind two features of intermediation that lie at the heart of financial instability – leverage and liquidity transformation.

2.3 Financial stability

The financial system is stable in the absence of a *systemic event*, ie a breakdown in or a severe disruption to a financial activity or activities (or parts thereof) that has material costs for the real economy. Accordingly, financial stability requires adequate capacity to absorb shocks when risks materialise, thus ensuring the resilience of all those activities that matter for the real economy.⁵

This and other definitions of financial stability share a focus on costly malfunctions of *activities*, ie their "failure" (FSB (2011)). Examples include a credit crunch or a freeze in payments, which would squeeze expenditures and depress output and employment, or a firesale that dislocates markets and entities. Thus, an objective of *any* financial stability policy, at least implicitly, is to minimise the likelihood of the failure of one or more activities and/or contain their repercussions.

Financial stability policy would also seek to minimise the risk and repercussions of entities' failure to the extent that this failure threatens a systemic activity. We define the *failure of an entity* as a severe disruption to its functioning that undermines its viability. This definition encompasses default and insolvency. But it also includes other entity-level events that dislocate financial activities.⁶ Take, for example, money market funds, which cannot be insolvent because they do not issue debt. When money market funds "break the buck", they disrupt investment and funding services; in this sense, they fail. This would resemble the disruption to lending and deposit-taking caused by the default of a bank. By the same token, a severe impairment to the convertibility of claims on open-ended funds would constitute a failure of these entities. Material disruptions to operational continuity (eg in payment services) would also qualify

⁴ In addition, some activities leave no trace on entities' balance sheets. For instance, centrally cleared derivatives do not appear on a CCP's balance sheet.

⁵ The FSB's Financial Stability Surveillance Framework (2021) provides another definition of financial stability: "the capacity of the global financial system to withstand shocks, containing the risk of disruptions in the financial intermediation process and other financial system functions that are severe enough to adversely impact the real economy".

⁶ This definition is consistent with the spirit of US (2010), which acknowledges that a firm can generate systemic events even if it remains solvent.

as failure. Likewise, a CCP's entry into resolution would be a failure because of the dislocation to central clearing, even though clearing members cannot put the CCP into default. Finally, a failure can also be a post-default event, such as the disorderly wind-down of a bank.

Section 3. EB vs AB regulation aimed at financial stability

3.1 The basics

The use of both AB and EB regulation in the pursuit of financial stability confronts policymakers with two quandaries. First, entities matter because of the financial activities they perform. Second, while policymakers ultimately care about activities, they must implement measures through entities.

Resolving these quandaries calls for a clear differentiation between AB and EB regulation (see also Restoy (2021a)). Our differentiation is based on whether a measure is calibrated at the level of an activity or entity.

AB regulation strengthens the resilience of a systemic activity *directly*, by imposing restrictions on how entities perform this activity alone, ie on a *standalone basis*. AB regulation does not vary with the type of entity that performs the activity or to the other activities that the entity performs. However, it *can* vary with the importance of an entity for the functioning of the activity.

EB regulation strengthens the resilience of activities *indirectly*, as it is calibrated at the level of the entities that perform them. It restricts those features of an entity that affect the risk and repercussions of its failure. Since an entity's resilience hinges on the mix of its activities, EB regulation imposes constraints on the *combination* of those activities.

Despite some inevitable ambiguity, we next show that our framework allows for a straightforward classification of policy measures into the AB or EB category.

3.2 Taxonomy

To illustrate the taxonomy, we consider regulatory measures that are widespread or feature prominently in policy discussions (Table 1).

Illustrative allocation to AB and EB regulation

Table 1

AB regulation	EB regulation
– Insurance scheme calibrated to a specific activity (eg collateralised lending)	– Bank minimum capital and liquidity requirements, large exposure limits, CCoB, Pillar 2 add-ons
– CCP/bilateral margin requirements calibrated at the instrument level	– G-SIB buffer
– LTV and DTI requirements	– Countercyclical Capital Buffer (CcyB)
– Operational standards for providers of a specific service (eg payments)	– Insurance scheme calibrated to entities' riskiness
– Retention requirements for securitisation originators	– Liquidity requirements for investment funds (eg WLA, WAM)
– Gates triggered by market-wide developments	– Gates and swing pricing at entity level
	– CCP default fund requirements that consider the mix of cleared derivatives
	– Living will requirements

Examples of AB regulation. Margin requirements that reference only the features of a derivative's underlying asset. Or operational standards for payments provision that abstract from the other activities of the service provider. Or requirements on securitisation retentions calibrated only with respect to features of the securitisation activity (eg tranches). Or LTV or DTI requirements that vary only with the growth rate or riskiness of specific types of lending.⁷

Examples of EB requirements. Minimum capital requirements are EB because they impose constraints on one item of bank balance sheets (capital) relative to another (risk-weighted assets).⁸ Tightening such requirements for entities whose failure is deemed to be systemic – as is the case of the G-SIB buffer – is EB as well.⁹ Also EB are liquidity requirements on banks or investment funds, as they impinge on the whole balance sheet. In addition, CCP default fund requirements are EB to the extent that they change with the mix of derivatives contracts cleared.

The same regulatory measure can be calibrated to features of both activities and entities. This is the case, for instance, with the countercyclical capital buffer (CcyB). The CcyB is a constraint on capital relative to the risk-weighted assets of an entity, but is adjusted over time in relation to the evolution of economy-wide lending activity (excessive credit growth or the threat of a credit crunch). We classify the CcyB requirement as EB because its calibration refers to more than one activity of the bank (lending and choice of liabilities structure) and its tightness depends on the bank's overall balance sheet. Likewise, we would classify as EB any countercyclical liquidity requirements on investment funds or swing-pricing triggers that reflect market-wide developments: the corresponding constraints depend on a fund's full set of activities. By contrast, gates on investment fund redemptions triggered by market-wide developments would be AB, as would countercyclical margin requirements calibrated to the level of derivatives trading, without reference to traders' balance sheets.

Section 4. Choices, complements and substitutes

The merits of EB and AB regulation depend on the underlying conditions (see also box).

EB regulation is called for wherever the primary cause of the failure of systemic activities is the failure of entities that perform these activities. Notably, the failure of even a few entities may lead to severe disruptions of their (bundled) activities. Banks are an obvious example (eg Admati and Hellwig (2013), Borio et al (2010), Claessens et al (2014), Kress et al (2019), Restoy (2021b)).

More generally, since the combination of activities is inherent in most financial intermediation – especially that involving liquidity transformation and/or leverage – EB measures are at the core of financial stability regulation (Table 2, right-hand panel). Hence the major policy efforts to make entity failures less likely and their resolution less disruptive (eg FSB (2014, 2021)).¹⁰

AB regulation is justified when two conditions are satisfied. First, the systemic activity at hand can fail even if the entities performing it do not. Second, the activity can be regulated directly on a standalone basis.

⁷ In practice, LTV and DTI requirements may apply only to certain types of entity, notably banks. While this practice may reflect systemic considerations (see Section 5 below), it creates scope for regulatory arbitrage.

⁸ The combination of LTV and bank capital requirements is a specific example of the general principle that both EB and AB regulations can and often do affect the same entities at the same time.

⁹ This is consistent with the approach taken in the Dodd-Frank Act, US (2010, see p 1475).

¹⁰ Kress et al (2019) argue that EB regulation may be needed when regulatory fragmentation hampers the consistent application of AB regulation across entities – eg when entities with different charters fall under the jurisdiction of different authorities. That said, the “congruence” principle of Metrick and Tarullo (2021), which has AB features, may be more effective in this context (see the last paragraph of Section 5 below).

Entities can drive the failure of some systemic activities even when their own viability is not immediately at risk. For example, the asset management activity can break down and cause system-wide liquidity shortages when investment funds respond to redemptions by selling in a falling market and hoarding cash instead of drawing down liquidity buffers while continuing to operate normally. AB regulation would be a natural choice to contain the likelihood and severity of such events since the root cause is an overstretching of an investment activity, as opposed to individual asset managers mismanaging risks on their balance sheets or otherwise failing. Similar vulnerabilities underpin risk-parity trades (Aramonte et al (2021)) or collateralised lending (Acharya and Öncü (2013)). The case for AB regulation is strengthened further if an activity is on a material scale or is performed by a broad range of financial entities that fall under the jurisdiction of different authorities – as is often the case for payment services.

To be successful in regulating an activity on a standalone basis, authorities should be able to influence the risk and severity of its failure *independently* of the regulated entities' other activities. This may be the case when the activity maps into one financial instrument, or a set of similar ones, eg (most) payments (the instrument being deposits), securitisation (eg loan sales, CDOs or CLOs) and collateralised lending (eg repo contracts). The condition would also hold when the level or rate of change of an activity generates a vulnerability, so that restrictions on the activity can improve financial stability. Think, for instance, of LTV and DTI limits in the case of a boom in housing finance, or investment fund gates triggered by market-wide overheating.

With activities and entities closely intertwined, there are strong interactions between AB and EB measures.

On the one hand, since the failure of entities can disrupt activities, better EB regulation (eg higher capital standards) means less need for AB regulation – substitutes. The substitution can also run in the other direction: since the failure of an activity can cripple entities – eg the impact of a credit crunch on banks – AB regulation, such as LTV limits, also strengthens entities.

On the other hand, deploying both AB and EB measures in a belt-and-braces approach can reinforce their effectiveness – complements.¹¹ This would be especially helpful when regulatory arbitrage is possible or financial risk metrics have inherent limitations. In addition, given the high potential for the failure of activities to trigger the failure of entities – and vice versa – it is important to avoid excessive reliance on only one type of measure and to target different sources of mutually reinforcing dislocations. One example is reducing the credit risk of over-indebted borrowers (via LTV or DTI restrictions) while also raising the loss-absorbing resources of overstretched lenders (via time-varying capital buffers).

Section 5. Differences between EB vs AB and MiP vs MaP

The MiP vs MaP distinction provides a different perspective on regulation from the EB vs AB one (Table 2). As is well known, regulatory measures have a MaP or MiP orientation depending on whether they are calibrated to systemic risk or not (Crockett (2000), Borio (2003)). In addition, the distinction between MiP and MaP depends on the dimension of risk considered.

The first dimension is the distribution of risk within the financial system at a point in time, ie the “cross-sectional dimension”. Within the universe of *EB measures* that target the cross-sectional dimension, MiP measures are calibrated by considering an entity *on a standalone basis*. As such, they tend to equalise *the risk of failure* across entities. By contrast, MaP measures consider each entity *as part of the overall*

¹¹ IAIS (2019) provides a concrete example of how EB and AB regulation can be used in tandem under a holistic approach to addressing systemic risk.

system, seeking to equalise *contributions to systemic risk* across entities.^{12, 13} They are stricter for entities with a larger systemic footprint (eg G-SIB surcharges).

MiP vs MaP and EB vs AB: *calibration concepts and examples*

Table 2

		EB	AB
MiP	cross section	<p><i>entities on standalone basis</i> eg bank minimum capital requirements or liquidity requirements that are uniform across banks or investment funds</p>	<p><i>no differentiation across entities performing activity</i> eg operational standards for payments that are uniform across providers</p>
	time	<p><i>metrics capturing materialisation of risk</i> eg risk-based capital requirements based on current credit or market losses</p>	<p><i>metrics capturing materialisation of risk</i> eg margin requirements based on current volatility</p>
MaP	cross section	<p><i>entities as part of overall system</i> eg G-SIB capital buffer; Cover 2 principle for CCPs</p>	<p><i>differentiation across entities according to role in activity</i> eg operational standards for payments that are stricter for providers with a larger market share</p>
	time	<p><i>indicators of financial overheating</i> eg CcyB</p>	<p><i>indicators of financial overheating</i> eg LTV and DTI requirements</p>

A similar distinction holds for AB measures, as they can also reflect the market structure underpinning a systemic activity. Specifically, those AB measures that apply uniformly to all the entities performing an activity are MiP. By contrast, MaP measures differentiate across entities according to their importance for the activity, most obviously in terms of the share of the specific activity that they account for (concentration).^{14, 15} One possible example is margin requirements for non-centrally cleared derivatives that apply only to entities of sufficiently high systemic importance (BCBS-IOSCO (2020)).¹⁶ Another could be LTV limits imposed only on banks because of their overall importance as lenders, although practical considerations may also be relevant (eg other lenders falling outside the regulatory perimeter).

The second dimension is the evolution of systemic risk over time – the “time dimension”. Along this dimension, MaP measures take into account the cyclical pattern of systemic risk or its dependence on collective behaviour (“endogeneity”). They do so to overcome a shortcoming of MiP measures: as MiP measures constrain entities or an activity more tightly in bad times than in good times, they may amplify systemic stress. By contrast, in doing the opposite, MaP measures recognise that collective retrenchment can exacerbate strains when the system is under stress (the “fallacy of composition”), such as through

¹² Restoy (2021b) stresses that the systemic implications could differ across institutions that perform different sets of activities: eg they would depend on whether the failing institution funds a given activity with its own resources or with deposits from the general public.

¹³ See Tarashev et al (2015). By analogy with a portfolio of securities, think of the MiP approach as seeking to limit the volatility of the return of *individual securities*, and of its MaP counterpart as focusing on the volatility of the *overall portfolio*. In the former case, the correlation of the returns is irrelevant; in the latter, it is essential.

¹⁴ In principle, AB regulation that is also MaP should account for interdependencies *across* activities. Given the attendant measurement complexity, such interdependencies are addressed in practice only partly and indirectly by EB regulation.

¹⁵ Their importance would also depend on the ease with which those entities can be replaced in the performance of that activity (substitutability). An entity’s position and the type of its clients would influence this substitutability. For example, the repercussions of a payment service provider’s failure would be greater if the entity operates alone in a specific area within a closed system than if its system is interoperable with that of several close competitors. In turn, corporate clients may suffer more from a payment’s disruption than would households, which may switch more easily to cash-based transactions.

¹⁶ Furthermore, even though they are not financial entities, large cloud service providers could be subject to AB regulation because of their impact on financial stability (FSB (2019, 2022)).

firesales or a credit crunch. And they account for the empirical regularity that exceptionally easy financial conditions reflect and encourage the build-up of risk.¹⁷

The following examples illustrate combinations of the EB and AB classification with the MiP and MaP one in the time dimension: minimum capital requirements (MiP, EB); the CcyB (MaP, EB); higher initial margins at times of stress (MiP, AB); and constant initial margins calibrated to previous stress episodes (MaP, AB).¹⁸

This analysis leads to two insights.

First, *AB regulation is not necessarily MaP*. True, AB regulation targets systemic activities, but the way in which it does so matters. In the time dimension, the AB measure may amplify the procyclicality of the financial system (eg by requiring higher initial margins when the system is under stress: MiP), or it may alleviate it (eg if the initial margins are of the through-the-cycle variety: MaP). In the cross-sectional dimension, the AB measure may (MaP) or may not (MiP) account for differences across entities as regards their relative importance in the performance of an activity.

Second, contrary to what is often argued, *AB measures are not necessarily consistent with a level playing field*. The belief that they are consistent derives from the presumption that they should be applied uniformly to all relevant entities. But this may run against MaP objectives. A focus on systemic risk in the cross section requires tighter measures on those entities that are of greater importance for the resilience of an activity, placing them at a competitive disadvantage.¹⁹

The analysis also sheds light on the deceptively intuitive and ubiquitous "same risk, same regulation" principle. The principle holds, but only if one clarifies what is meant by "risk" and specifies the type of regulation. In particular, "risk" could refer to the failure of an entity, of an activity or of several activities; and regulation could be of the AB or EB type. Without specifying these conditions, the statement is vacuous. It would be more meaningful to restate it as "same risk, same AB regulation" or "same risk, same EB regulation". Moreover, and importantly, enforcing this principle would not level the playing field if the targeted risk is systemic risk.

Augmenting this principle with the "same activity" clause would be misleading. This addition would reflect an implicit assumption that AB regulation is always the right type of regulation. But, as argued above, EB regulation is superior in many cases and needs to be applied to entities that may differ in their mix of activities.

The "same risk, same AB regulation" principle is a more restrictive version of the "congruent" principle, which Metrick and Tarullo (2021) seek to apply to NBFI activities. The authors note: "[the containment of systemic risk] calls for regulation to be *congruent*, not necessarily *identical*. This is an important distinction: "congruent" regulation makes use of economically similar (but not identical) instruments, with regulation coordinated across agencies. We believe that congruence is both more flexible and more achievable than other alternatives." In other words, the congruence principle refers to economically similar financial instruments that underpin the same activity and seeks to ensure the consistent application of regulation across various supervisory agencies. The principle can be read as proposing to use AB measures with a MaP orientation in a way that is flexible but consistent with the "same risk, same AB regulation" principle.

¹⁷ More generally, risk metrics based on averages over cycles ("through-the-cycle") can be regarded as MaP; those that are not, as MiP ("point-in-time").

¹⁸ Since MaP measures are explicitly designed to target systemic risk, it may be tempting to conclude that they are always superior to MiP ones. In practice, however, MiP measures are essential, as demonstrated by the post-Great Financial Crisis regulatory reforms, which have greatly strengthened the financial system under an EB approach. Key reasons include the longer experience with MiP than with MaP regulation, and the generally greater ease of assessing and targeting entities' resilience on a standalone basis than as part of a system (see also box).

¹⁹ Importantly, MaP regulation *need not* unlevel the playing field. For example, a G-SIB capital surcharge can partially correct for a cost or funding advantage that a G-SIB has over other banks because it benefits to a greater extent from a public safety net.

EB or AB regulation? Additional considerations

Many real-world features of the financial system influence the desirability and effectiveness of regulatory tools.

Tools must apply to a legal entity or person and/or refer to measurable activities. This observation, while obvious, requires identifying the de facto owner or controller of an entity. This has become harder owing to technological advances – notably crypto financing and DeFi. In turn, the challenge of addressing observable activities shows up in the details of many regulations, eg the data to be used and the ways in which they are verified, the timing of compliance with requirements etc. When the risks of an activity can vary quickly and relevant data are observable and verifiable at a high frequency with little delay, AB measures are quite appealing. This is because the specific activity implies that a frequent adjustment of a tool is both desirable and feasible (eg margin requirements). By contrast, the appeal of EB measures is greater if financial stability risks play out over long periods and the relevant data and their verification are less frequent. This is arguably the case for credit risk, which banks report to authorities in quarterly or yearly balance sheet statements.

Licensing is an important part of the regulatory toolkit. Entities providing financial services are typically defined by their licences, which allow for specific activities or bundles thereof to exploit economies of scope (as in the case of banks).^① Some licenses can be easily acquired by many types of entity (eg for payment services) whereas others are more demanding and restrictive (eg for underwriting bonds or equity) and may impose limits on other activities performed by the entity (eg the separation of banking and commerce). The licence setup then determines which specific authorities can impose EB measures on which entities. In this setup, however, it could turn out that, among all the entities performing a systemic activity (eg lending or payments), only those that hold a specific licence (eg banks) are regulated with a financial stability objective. The attendant vulnerabilities would be addressed by AB measures, pursuing the same objective and applied to all entities performing the activity at hand (eg big techs engaging in lending or payments).

Financial holding structures are also key for regulation. Related to licensing, a financial services provider may want to – or have to – organise a particular set of activities in a separate legal entity, ie a subsidiary. A key feature of subsidiarisation is that it helps align level playing field and financial stability considerations, especially if it generates similarly sized subsidiaries performing a narrow and similar range of activities. Furthermore, to the extent that it insulates a unit performing systemically relevant activities,^② subsidiarisation allows for more specific and tighter regulation on that unit alongside lighter regulation on the other parts of the group, eg Borio and Filosa (1994). Subsidiarisation also facilitates the enforcement of regulation and supervision as well as the resolution of entities. But there can be drawbacks, too. For instance, subsidiarisation may become a channel for regulatory arbitrage (eg the creation of an SPV to escape bank regulation). This may not only unlevel the playing field but, if firewalls do not work perfectly, may also increase the systemic importance of the holding structure.

Supervision and enforcement challenges, stemming from the fluidity of financial markets, can affect the choice between EB and AB. For instance, even though AB measures may be better *in theory* at influencing a specific activity by accounting for rapid changes in underlying risks, the tailoring and enforcement efforts required may be prohibitively high, thus making EB measures the preferred ones. In turn, supervision challenges imply that the financial system can and will adapt to specific regulations in order to maximise returns on its activities (“regulatory arbitrage” in a static sense and an “arms race” in a dynamic sense). This puts a premium on flexible and principles-based regulation, whether or not it is of the EB or AB type.

The above features indicate that the choice between an EB or AB measure involves complex considerations. As the unbundling of activities proceeds, the mapping between entities and activities evolves and so does the applicability of EB or AB regulation. In addition, licensing regimes may unduly limit the reach of EB measures and – barring enforcement challenges – may imply that AB measures are superior. And while holding structures should be designed to enhance the effectiveness of EB measures, they also need to prevent the conduct of specific activities from evading proper regulation.

^① In addition, regulation may prohibit the provision of certain financial services to certain types of user (eg some investment products may only be sold to professional investors). While this is a restriction on users rather than on the provider, we ignore it here since compliance mostly rests with the provider, similar to the case of AML/CFT. Moreover, these rules are largely or even exclusively about investor protection or market integrity. ^② This purpose differs from the subsidiarisation requirement imposed by host authorities of, say, a banking group with headquarters in another (home) jurisdiction. In this case, the purpose is to retain more host control on the activities of the subsidiary (“ring-fencing”), given the global fragmentation of the supervisory framework.

Section 6. Applications to NBFIs and big techs

NBFIs. The NBFIs category comprises various entities – from mutual and hedge funds to insurance companies, to CCPs – that perform a wide range of activities, from lending to trading on capital markets to insurance underwriting. In making recommendations for the regulation of NBFIs, the FSB has focused on credit intermediation activities that give rise to unaddressed financial stability risks. A notable example is the activities performed by various forms of collective investment vehicles. The FSB's stated approach is distinctly AB: it refers explicitly to "activity-based policy measures" (FSB (2015)) that would seek to enhance the resilience of asset management activities by mitigating maturity/liquidity transformation and leverage (FSB (2017)).

Policymakers' statements notwithstanding, key aspects of NBFIs regulation *are largely EB*. A notable example is (minimum) liquidity and leverage requirements for mutual funds, which are calibrated at the level of funds' balance sheets. Seeking to strengthen the resilience of individual funds, these measures are conceptually equivalent to regulatory requirements for banks, and structured in a very similar way. And they are, in both cases, MiP. In times of stress, mutual fund liquidity requirements lead to liquidity hoarding or deleveraging that exacerbates market swings, thus undermining financial stability. One reason for the mismatch between NBFIs measures and financial stability objectives is that the requirements were designed for narrow investor-protection purposes.²⁰

AB margining requirements are another example of tools whose design could be improved to better support financial stability (see also Cunliffe (2022)). Despite concerns about their procyclicality (FSB (2017), p 24), they are still calibrated largely without regard to systemic risks. As shown most recently in March 2020, margin requirements induce each entity to preserve its own liquidity position but can compromise the overall systemic activity (eg derivatives trading). Moreover, since they reflect short look-back periods and do not try to anticipate stress down the road, they are MiP measures. By contrast, financial stability would call for a MaP perspective along the time dimension.

Overall, the dominance of investor-protection objectives in the investment fund sector and the consequent focus on entities on a standalone basis result in a policy gap from a financial stability perspective (eg Borio et al (2020)).

Big techs.²¹ Big techs have expanded into financial services in recent years and are poised to expand further. Even though their financial activities (eg payment services) are a small part of their overall business, big techs may already be large players in some systemic activity, or soon could be. AB regulation would be a natural starting point to ensure that big techs are subject to the same financial stability measures as other entities performing the same activities. In addition, as argued above, MaP considerations would call for imposing tighter constraints on big techs that dominate a specific activity. This would tilt the playing field *against* them.

That said, an AB approach will generally be insufficient. Since big techs provide a gamut of services, the systemic repercussions could be substantial if one of these entities were to fail. EB measures with MaP orientation, as in the case of G-SIBs, would thus be warranted.²² For such regulation to be effective and efficient, notably avoiding the imposition of financial stability measures on non-financial activities, big techs may need to adopt a holding company structure and engage in financial activities

²⁰ Likewise, as regards swing pricing and gates, "[t]he decision to use such tools should generally remain with the asset manager because the manager is responsible for evaluating what is appropriate for a particular fund" (FSB (2017) p 22).

²¹ Given this article's focus on financial stability, the discussion of big techs is largely complementary to that in Carstens et al (2021), who consider mainly market dominance and data governance issues.

²² Big techs also provide cloud services to many financial institutions, which creates systemic operational risks that are outside this note's scope; see also FSB (2022).

though designated legal entities within it.²³ With the subsidiary well identified, the choice to regulate it with EB and/or AB measures will depend on the mix of its activities. In addition, regulation will need to ensure that problems at the parent company do not undermine the subsidiary's viability.²⁴

While these principles apply to all conglomerates with financial subsidiaries, the unique features of big techs warrant special attention.

Given the network externalities stemming from the combination of big techs' many services – notably those involving the collection and use of data – financial stability measures may fall short of attaining their objectives. If data collected from non-financial businesses (eg social media, search, online commerce etc) can be used for financial services provision, there is a risk that a few big techs would quickly come to dominate (some) markets. Combined with centralised technology structures, this concentration might jeopardise financial stability (BIS (2021)). Thus, several large jurisdictions have taken far-reaching steps to address the challenges associated with big tech platforms, notably seeking to prevent abuse of market dominance (Carstens et al (2021)), Crisanto et al (2021)). Ultimately, proper limits on the collection and use of data across big techs' multiple services will probably be needed to attain public policy objectives, including financial stability ones.

Section 7. Conclusion

The distinction between EB and AB regulation reflects the calibration of policy measures. AB regulation is calibrated with exclusive reference to a given (systemic) activity, regardless of the characteristics of the entities that perform it. As such, it strengthens the resilience of this activity directly. By contrast, EB regulation is calibrated to the combination of activities within an entity. As such, it strengthens the resilience of activities indirectly, by reducing the risk and repercussions of the entity's failure – defined so as to encompass any disruption to its functioning.

Neither AB nor EB regulation is a priori the optimal choice. AB is superior when (i) the failure of an activity – as opposed to that of the entities performing it – can create a systemic event; and (ii) this activity can be effectively regulated directly on a standalone basis. A notable example is an investment activity that may trigger or fuel firesales. That said, when financial stability requires constraining the combination of different activities within entities, authorities need to resort to EB measures. This is often the case because of the very nature of financial intermediation, notably in the presence of leverage and liquidity transformation, which are at the root of key financial vulnerabilities. Importantly, EB and AB regulation can reinforce each other in a belt-and-braces approach (eg LTV/DTI maximum ratios alongside capital requirements).

Comparing the EB vs AB classification with the MiP vs MaP one yields important insights. For one, although AB measures target systemic activities, they are not necessarily MaP. This is because they may not take into account the importance of individual entities for the given activity. And when AB regulation does adopt a MaP perspective, it is not necessarily consistent with a level playing field, in contrast to a common view. Notably, such regulation should impose stricter standards on entities that perform a larger share of a systemic activity, thus putting them at a competitive disadvantage, all else equal.

²³ In addition, there may need to be specific restrictions on ownership structures (eg to assure a separation of banking from commerce) and other limits (eg on related-party transactions).

²⁴ Given the tight and complex interconnections between big techs' financial and non-financial activities, Restoy (2022) argues for an ambitious policy framework in which EB measures play a key role in addressing risks to financial stability, business conduct and operational resilience

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