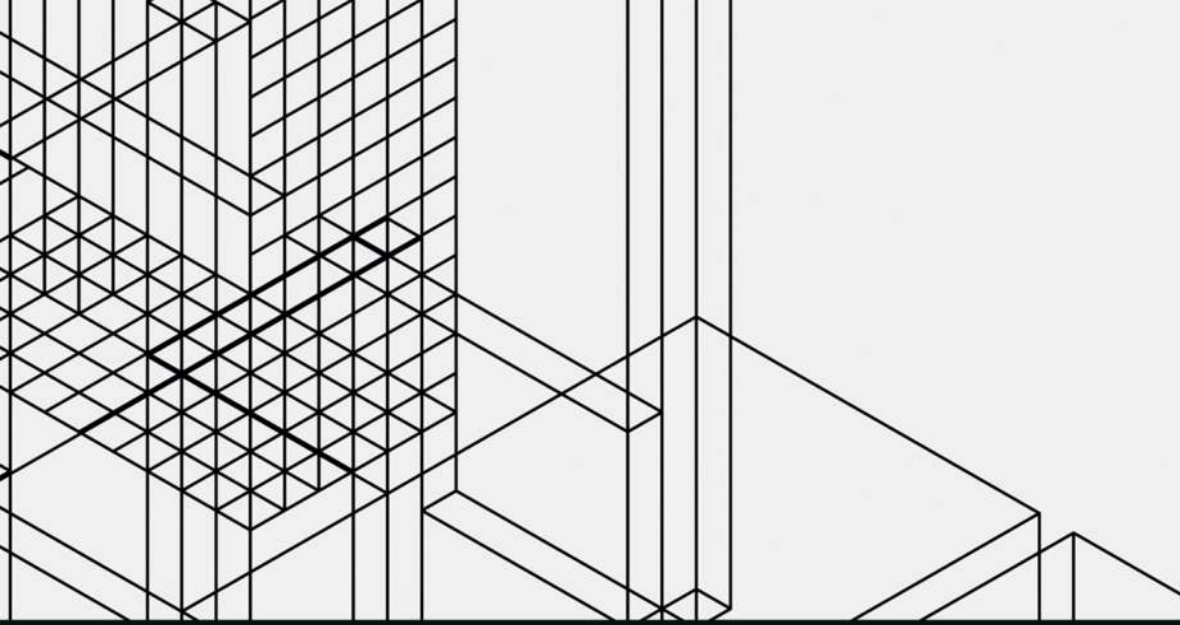
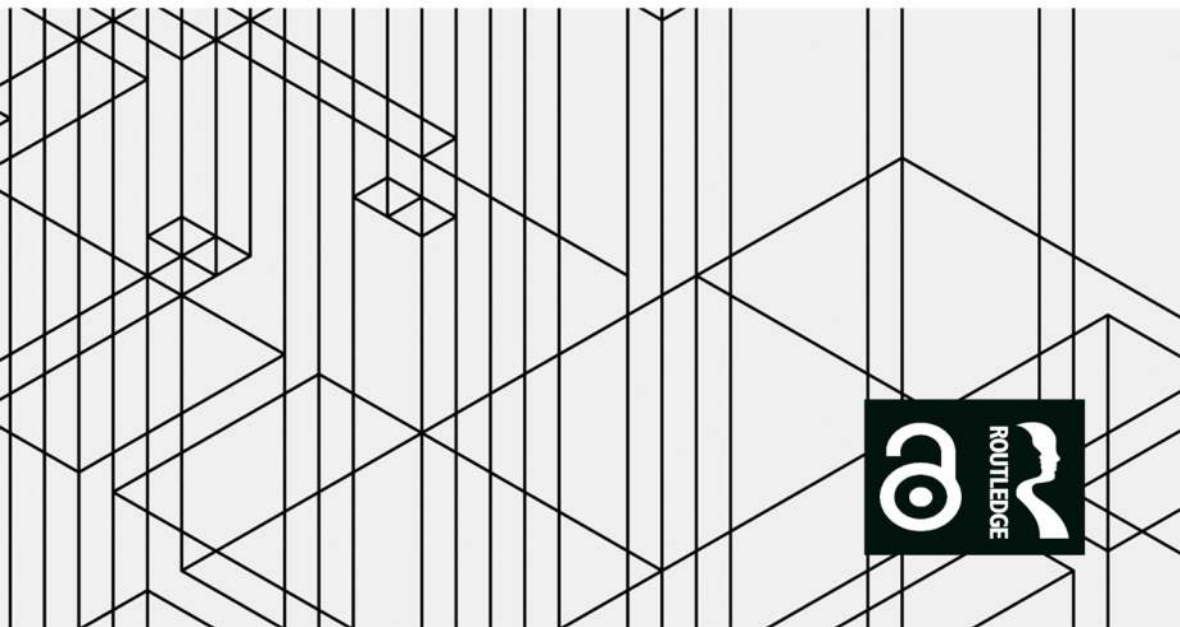


Routledge Research in Finance and Banking Law

THE REGULATION OF MEGABANKS

LEGAL FRAMEWORKS OF THE USA AND EU

Katarzyna M. Parchimowicz



The Regulation of Megabanks

Global systemically important banks (G-SIBs) are the largest, most complex and, in the event of their potential failure, most threatening banking institutions in the world. The Global Financial Crisis (GFC) was a turning point for G-SIBs, many of which contributed to the outbreak and severity of this downturn. The unfolding of the (GFC) also revealed flaws and omissions in the legal framework applying to financial entities. In the context of G-SIBs, it clearly demonstrated that the legal regimes, both in the USA and in the EU, grossly ignored the specific character of these institutions and their systemic importance, complexity, and individualism. As a result of this omission, these megabanks were long treated like any other smaller banking institutions.

Since the GFC, legal systems have changed a lot on both sides of the Atlantic, and global and national lawmakers have adopted new rules applying specifically to G-SIBs to reduce their threat to financial stability. This book explores whether the G-SIB-specific regulatory frameworks are adequately tailored to their individualism in order to prevent them from exploiting overly general rules, as they did during the GFC. Analyzing the specific character and individualism of G-SIBs, in relation to their history, normal functioning, as well as their operations during the GFC, this book discusses transformation of banking systems and the challenges and opportunities G-SIBs face, such as Big Tech competitors, climate-related requirements, and the COVID-19 pandemic.

Taking a multidisciplinary approach which combines financial aspects of operations of G-SIBs and legal analysis, the book describes G-SIB-oriented legal frameworks of the EU and the USA and assesses whether G-SIB individualism is adequately reflected, analyzing trends in supervisory action when it comes to discretion in the G-SIB context, all in order to contribute to the ongoing discussions about international banking law, its problems, and potential remedies to such persistent flaws.

Katarzyna M. Parchimowicz is Assistant Professor at the Academic Excellence Hub – Digital Justice Center (University of Wroclaw, Poland) and Associate Researcher at the European Banking Institute.

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Abbreviations

ABCP	asset-backed commercial paper
AT1	Additional Tier 1
BCBS	Basel Committee on Banking Supervision
BHC	bank holding company
BIS	Bank for International Settlements
BoA	Bank of America
BRRD	Bank Recovery and Resolution Directive
CCAR	Comprehensive Capital Analysis and Review
CDO	collateralized debt obligation
CDS	credit default swap
CET1	Common Equity Tier 1
CFR	Code of Federal Regulations
CFTC	Commodity Futures Trading Commission
CMG	Crisis Management Group
CRD	Capital Requirements Directive
CRR	Capital Requirements Regulation
DFA	Dodd-Frank Act
DFAST	Dodd–Frank Act Stress Test
EBA	European Banking Authority
ECB	European Central Bank
ESRB	European Systemic Risk Board
EU	European Union
FCIC Report	Financial Crisis Inquiry Commission Report
FDIC	Federal Deposit Insurance Corporation
Fed	Federal Reserve Board of Governors
FR	Federal Register
FSB	Financial Stability Board
FSOC	Financial Stability Oversight Council
G-SIB	global systemically important bank
GFC	Global Financial Crisis
JST	joint supervisory team
MBS	mortgage-backed security
MREL	minimum requirement for own funds and eligible liabilities

OCC	Office of the Comptroller of the Currency
OECD	Organisation for Economic Co-operation and Development
OFR	Office of Financial Research
OTC	over-the-counter
P2R	Pillar 2 Requirement
RWA	risk-weighted asset
SCAP	Supervisory Capital Assessment Program
SCB	Stress Capital Buffer
SEC	US Securities and Exchange Commission
SIB	systemically important bank
SocGen	Société Générale
SPV	special purpose vehicle
SRB	Single Resolution Board
SREP	Supervisory Review and Evaluation Process
SRM	Single Resolution Mechanism
SSM	Single Supervisory Mechanism
TARP	Troubled Asset Relief Program
TLAC	Total Loss-absorbing Capacity
WaMu	Washington Mutual

Introduction

Context and rationale

Global systemically important banks (G-SIBs), known as 'megabanks' or 'big banks', surround us – even if we do not think that we are their direct customers, we most probably have an account with one of their subsidiaries or use services of one of the firms in their networks. They constitute large financial entities that provide a broad range of finance-related services on a global scale, and their potential failure would severely impair financial stability.[1]

Even though these institutions are grouped under said general terms, they do differ from one another. Namely, they represent a variety of business models and focus on different activities and markets.[2] G-SIBs may simultaneously serve as retail intermediaries, offer investment and custody services, or administer payment systems. But not all of them are so universal. Some specialize, be it in the context of business areas, be it geographically. Also, when we think of G-SIBs, we should not imagine them as monolithic institutions. As Rosa Lastra noted,[3] they actually resemble the baobab trees described in *The Little Prince*. They conquered the world by spreading their roots and trunks all over it. Their complex networks of subsidiaries and branches really seem to reach almost every country on the planet. Such banks finance virtually the whole world for profit.

Realistically, regardless of the numerous suggestions to get rid of them or break them up,[4] we should rather learn how to handle them. We should learn to regulate them, to let them function but within pre-established boundaries, because from a future perspective, G-SIBs will resemble not baobab trees but humans on Earth, as most probably we will never know how it would be without them here.

1 An accurate and more in-depth analysis of their operations and their scale is to be found in Chapter 1.
2 See Chapter 1.
3 Rosa Lastra, 'Systemic Risk and Macroprudential Supervision', in Niamh Moloney, Eilís Ferran and Jennifer Payne (eds), *The Oxford Handbook of Financial Regulation*, Oxford University Press, 2015, p. 315.
4 See Chapter 4.

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There are some signs that this has happened already and that they are under control. The latest report by the Financial Stability Board (FSB)[5] optimistically concludes that significant progress in the G-SIB context has been made since the Global Financial Crisis (GFC). It could be argued that this is because the pre-crisis threshold was so low that any action would be considered an improvement, or that the global financial system has become safer. Undeniably, systemic importance is taken more seriously, and it has turned into a decisive factor when it comes to levels of regulatory scrutiny. As shown in the recent World Bank paper summarizing the Bank Regulation and Supervision Survey, the vast majority of jurisdictions have started to differentiate between systemically relevant banks and other entities.[6] Consequently, G-SIBs' levels of capital increased,[7] and leverage ratio is also higher than just after the crisis.[8]

Some of the G-SIBs, even though most of them naturally oppose stricter regulation aimed their way, admitted that in this case it was necessary. Long-time CEO of Morgan Stanley, John Mack, said about the big banks that 'we cannot control ourselves. You [lawmakers and regulators] have to step in and control the Street. (…) Regulators? We just love them'.[9] Additionally, it seems like these reforms contributed to the fact that the global pandemic crisis has not turned into a full-blown banking crisis.[10]

Unfortunately, regardless of the undeniable success that the creation of G-SIB-oriented frameworks has constituted, there are issues that blur this seemingly perfect picture. This very same FSB Report shows clearly that the funding advantage of G-SIBs is even bigger than before 2007/2008,[11] which means that the likelihood of G-SIBs being bailed out with taxpayers' money has not substantially decreased. It was confirmed by the evaluation of 2020 data – during the pandemic funding cost advantages additionally increased.[12]

Also the volatility interconnectedness between these entities has reached levels higher than before the GFC.[13] This could mean that were Lehman Brothers' failure to be repeated, the externalities of such a collapse would have an even more serious impact on the financial system.

In addition to these worrying signals from the FSB Report, other G-SIB-related issues are looming on the horizon. Deregulation tendencies in the G-SIB context

5 FSB, 'Evaluation of the effects of too-big-to-fail reforms. Final Report', 31 March 2021 (further as FSB TBTF Report 2021).

6 Deniz Anginer et al., 'Bank Regulation and Supervision Ten Years after the Global Financial Crisis', *World Bank Group Policy Research Working Paper*, No. 9044, October 2019, p. 57.

7 FSB TBTF Report 2021, p. 48.

8 Ibid.

9 *Evening Standard*, 'Regulators? We Just Love 'Em, Says John Mack', 11 April 2012.

10 FSB, 'Lessons Learnt from the COVID-19 Pandemic from a Financial Stability Perspective. Final Report', 28 October 2021; Dennis Kelleher, Tim Clark, 'No Financial Crash Yet Thanks to Dodd-Frank and Banking Reforms', *Better Markets White Paper*, 24 June 2020.

11 FSB TBTF Report 2021, p. 35.

12 Ibid, p. 39.

13 Ibid, p. 62.

can already be seen in different jurisdictions. From EU countries wanting to protect their national champions, to a Trump administration that started to dismantle the achievements of the Dodd–Frank Act, it is clear that banking lobbyists are succeeding, and maybe soon G-SIBs will be able to take excessive risks again without bearing their costs. This 'heads I win, tails you lose'[14] strategy turned out very harmful to the world economy, and returning to it could have even more profound consequences than the first time around. Recent scandals caused by systemic misconduct of several G-SIBs clearly demonstrate that such a grim scenario is never very distant. For instance, Wells Fargo with its fake accounts debacle has again provided arguments for the experts arguing that G-SIBs are too big to manage.[15] Further, Goldman Sachs has admitted having broken the law for the first time in its history. Normally, all Goldman scandals are settled outside the courtroom, but the scheme that had Goldman employees contributing to a $1 billion bribery and bond issue benefiting Malaysian officials did not want to go away.[16] In a further blow to G-SIBs' reputation, relatively recently leaked Financial Crimes Enforcement Network (FinCEN) files clearly indicated that JP Morgan Chase and Deutsche Bank, along with some other G-SIBs, established channels for money laundering and did not verify transactions they intermediated.[17] It has also been a tough time for Credit Suisse, tainted by Greensill and Archegos defaults and the latest Tuna Bond scandal.[18]

Apart from this general misconduct potential, pandemic-induced problems are haunting the banking industry. Even though most banks remain fairly resilient, G-SIBs are braced for loan losses, at the same time trying to inflate their balance sheet and keep serving a real economy in crisis. Their intermediary function and ability to transmit monetary policy are crucial in order to prevent countries from falling into recession. On the other hand, G-SIBs' appeals for the temporary loosening of capital regulation are often perceived as an attempt to create a long-lasting less strict legal environment.

In light of these worrying signs and the stormy times ahead of us, it should not be allowed for lawmakers and scholars to become complacent. Quite the opposite – attention should be drawn to the G-SIBs and their regulation, without optimistically assuming that everything has been fixed. Financial, economic, and banking crises will never go away. Hence, regulation on G-SIBs has to be

14 *Better Markets*, 'Special Report "Ten Years of Dodd-Frank and Financial Reform"', 21 July 2020.

15 Kate Gibson, 'Wells Fargo "Too Big to Manage," Lawmaker Tells CEO', *CBS News*, 12 March 2019, www.cbsnews.com/news/wells-fargo-ceo-tim-sloan-told-by-lawmaker-that-bank-is-too-big-to-manage/, accessed 9 November 2021.

16 Matthew Goldstein, Emily Flitter, 'Goldman Sachs Malaysia Arm Pleads Guilty in 1MDB Fraud', *The New York Times*, 22 October 2020.

17 *BBC News*, 'FinCEN Files: All You Need to Know About the Documents Leak', 21 September 2020, www.bbc.com/news/uk-54226107, accessed 9 November 2021.

18 Reuters, 'Factbox: Spies, Lies and Losses: Credit Suisse's Scandals,' 4 November 2021, www.reuters.com/business/finance/spies-lies-losses-credit-suisses-scandals-2021-11-04/, accessed 9 November 2021.

improved as much as it is possible, according to Julia Black's regulatory approach to 'hope for the best, but prepare for the worst'.[19]

Consequently, in this contribution, a closer look is given to G-SIBs and their regulation in the US and in the EU, in order to understand these institutions, to identify major flaws of the currently binding system, and most importantly to suggest ways for its improvement.

Structure

In the first chapter, the focus is solely on G-SIBs, starting from the transformation of banking services that took place in the last decades. Changes in capital flows, technology, and economic theories redefined banking and led to the emergence of novel activities and ways of funding, but also risks. Modern banks are no longer banks in the traditional sense of the word; they constitute complex conglomerates combining different financial services in different proportions. This is especially visible in the context of G-SIBs, and the word 'different' seems highly underused in their context. There is a tendency to treat them as a monolithic, uniform group of large complex banking entities, but such an approach is incorrect. The main part of this chapter demonstrates why. First, various aspects of functioning of G-SIBs are analyzed from this angle. Then the attempts to assign them to a predefined business model are assessed. Finally, the issues that are likely to define G-SIBs' future are examined.

With the knowledge of how different G-SIBs are and how they function in normal times, the focus of the second chapter shifts towards the regulatory landscape and the banks' operations in the context of the GFC. In contrast to the common generalizing presumption that all G-SIBs contributed to the severity of this crisis equally, it was not really like that. Before the crisis, regulation of G-SIBs was either non-existent or very scattered and general. No supervisory discretion was included in these provisions for regulators to adjust them if needed. This constituted an important factor for how things developed during this downturn. Namely, the G-SIBs, inherently different as shown in the first chapter, represented different modes of operation during the crisis – some exploited the overly general character of the law for their own profit, some remained cautious. The second chapter includes an analysis of their functioning during the GFC, taking into account the aspects that are most commonly perceived as reasons for the severity of this downturn, such as size of assets, leverage, capital levels, funding, securitization, and contagion potential. In its last part, the chapter also presents the change of regulator reasoning in the context of G-SIBs that led to a far-reaching reform, the results of which we can observe now.

The third chapter describes the outcome of lessons learned from the crisis, which took the form of G-SIB-oriented legal regimes. Namely, this chapter encompasses

19 Julia Black, 'Regulatory Styles & Supervisory Strategies', in Niamh Moloney, Eilís Ferran and Jennifer Payne (eds), *The Oxford Handbook of Financial Regulation*, Oxford University Press, 2015, p. 248.

the entirety of G-SIB-specific frameworks, both at international and regional levels of the USA and the EU. It starts the analysis with the institutional supervisory set-up and then moves to designation procedures and material aspects such as additional G-SIB buffer, leverage ratio add-on, and exposure limit. It continues with the presentation of G-SIB resolution frameworks and finalizes the considerations with the Pillar 2 powers, including stress testing and further buffers. Apart from the description of the mentioned regimes, the analysis includes two relevant perspectives: whether these material rules take the individual character of G-SIBs into account and, if not, whether there is an option to exercise supervisory discretion and fix such omissions in this way. The assessment shall allow us to conclude whether the current framework is adequately tailored in its present shape or whether it is still too general and enables G-SIBs to potentially stretch the law, as happened during the GFC.

The fourth chapter is closely intertwined with the results of the third one. It focuses on the aspect of supervisory discretion that has been built into almost all of the currently binding G-SIB-specific rules. These discretionary powers allow regulators to adjust G-SIB-oriented provisions according to the individual characteristics of each banking institution. Consequently, it could constitute a remedy for the overly general character of these rules. This chapter first analyzes general theory behind supervisory discretion – its complex nature and behavioral foundations. Then, already in a G-SIB-specific context, the positive potential of this discretionary tool is examined. Later, the chapter demonstrates how regulators at both international and regional levels actually do not use their granted discretion. Then, the obstacles preventing them from doing so are described. Finally, recommendations to address these issues are formulated. If introduced, these improvements could allow supervisors to use supervisory discretion and consequently to enhance G-SIB-oriented legal frameworks.

Methodology and terminology

This book is based methodologically on a comparative analysis of the US and the EU regimes, as well as the international framework constituting the foundation of the national rules. The choice of the USA and the EU was simple, given that most of the G-SIBs (as determined in the latest FSB list)[20] stem from these two jurisdictions. The third biggest legal regime in this context, China, does not provide sufficient accessible and reliable data in order for me to be able to include it in my work. As for the UK G-SIBs, they are sometimes mentioned in the general parts of this book aimed at illustrating some tendencies at the global level. However, as they no longer can be considered EU G-SIBs, the analysis of law does not encompass them.

Further, dogmatic and empirical methods are used. The former one is crucial when analyzing material legal provisions. In this respect, legal provisions

20 FSB, '2021 list of global systemically important banks (G-SIBs)', 23 November 2021 (further as FSB 2021 G-SIB list).

applicable to G-SIBs because of their systemically important status, not due to other factors, were selected. Consequently, structural measures such as the Volcker Rule are not included in the analysis, because they are binding universally, not depending on systemic importance. Further, liquidity measures such as the liquidity coverage ratio and net stable funding ratio also do not depend on systemic importance – in the EU they apply universally, and in the USA the criterion is size of assets.[21] Therefore, the regulatory areas selected for analysis are designation, G-SIB capital buffer, G-SIB leverage ratio, large exposure limits, G-SIB-specific resolution measures, and Total Loss-absorbing Capacity (TLAC), as well as Pillar 2 solutions for G-SIBs, including stress testing.

As for the empirical research, data from different publicly available resources were gathered and analyzed. In the first chapter annual reports of the G-SIBs were examined in order to grasp their individualism. Attention was drawn to the reports for 2019 (based on end-2019 data, often published in 2020), as that was the last year showing normal, not pandemic-related, banking activity. In that chapter the aim was to show how they operate in normal times, therefore reports for 2020 changed by the pandemic and governmental actions to boost the real economy would not be accurate for that purpose. For the fourth chapter, data on supervisory activity in the context of G-SIB provisions and their adjustments were gathered. In the case of designation decisions, the FSB's lists were used, as well as data published by the US Office of Financial Research (OFR) and designatory decisions posted by the European Systemic Risk Board. Further, the focus was on the Comprehensive Capital Analysis and Review (CCAR, US stress-testing program), reports published by the Federal Reserve Board, and at the Supervisory Review and Evaluation Process (SREP)/Pillar 2 results from the EU. The results of this data examination are visible in the tables throughout this book. In contrast to the first chapter, the fourth chapter includes data from 2020, as supervisory reactions during the COVID crisis also contribute to the picture of regulators' activities.

This book considers legal provisions and their amendments as per 7 December 2021. In some cases, however, already adopted but not yet implemented rules are also mentioned. Clear indication on this matter is always to be found in the footnotes.

Several terminological issues require clarification in order to avoid confusion and critical voices about some imprecisions. First, when it comes to the central term of this contribution – G-SIBs – this name encompasses the financial companies designated as G-SIBs by the FSB.[22] They will also sometimes be referred to as 'megabanks', 'big banks', or 'banking institutions'. However, it does not mean that these entities match the narrow legal definitions of deposit-insured banks in the USA or credit institutions in the EU. G-SIB designation is based on the data

21 Federal Register, Volume 79, Issue 197, 10 October 2014, 79 FR 61439; and *Better Markets*, 'Special Report', p. 30.

22 According to the lists published by the FSB since 2011. Most of the institutions used as specific examples here were designated every year.

that relate to the consolidated group,[23] so the terms 'G-SIBs', 'big banks', or other variants of banking entities in this contribution will apply to the entirety of the financial company from its consolidated level perspective, not only to the deposit-taking subsidiary.

Second, in this book the collective terms 'regulators' and 'supervisors' are used as synonyms.[24] Currently many authorities both in the USA and in the EU simultaneously fulfil rule-making and supervisory functions. The book refers particularly to the agencies that play the most important part in the G-SIB context, such as the Federal Reserve, Federal Deposit Insurance Corporation, European Central Bank, and the European Banking Authority. Thus, the term 'regulators' for the purposes of this contribution shall be distinguished from the term 'legislators', describing legislative entities, such as the US Congress or the European Parliament, that create the law at the most general level. In turn, the term 'supervisory discretion' is used consistently to refer to the powers granted to the supervisors allowing them to adjust G-SIB-specific provisions according to the individual features of the institutions. There are two main reasons for this decision. First, 'regulatory discretion' could be misleading, as it could suggest reference to the delegated rule-making that the agencies undertake in a broader context, not just as a way to adjust generally binding provisions to individual features of a given entity. Secondly, exercising of this granted discretion is closely related to supervisory functions of said authorities. It requires knowledge of individual features of G-SIBs and proximity to their operations, as it constitutes an outcome of supervisory assessment. These are individual decisions, much closer to the supervisory capacity than to the regulatory one.

Limitations

The main limitation encountered during this research project is data availability. Many details about G-SIBs' functioning and operations or supervisors' decisions related to them are not disclosed to the public. This is especially visible in the context of resolution and stress testing. Due to the specific character of financial regulation and its potential adverse effect on the market, the data availability has to be balanced against possible externalities of such disclosure.

Such limitations, combined with my hybrid legal/finance background, prevent the drafting of individual standards for each of the G-SIBs – such a job can only be done by the supervisory analysts, who do have access to much broader data sources and can always demand clarifications and cooperation from the institutions themselves. In this respect it is relevant to stress that this contribution does not specifically define what provisions should be amended by means

23 BCBS, 'Global systemically important banks: updated assessment methodology and the higher loss absorbency requirement', 5 July 2018, point 12.

24 For a broader argument that these terms can be used synonymously, see Julia Black, 'Regulatory Styles', p. 218.

of supervisory discretion and how. Some indication regarding the direction in which rules should be individualized can be found in Chapter 3, as an outcome of the analysis on which provisions are overly general and what they are missing. As mentioned before, though, the final adjustments constitute the job of the analysts at the supervisory agencies, who have access to much more data than the public and are able to both calculate it quantitatively and assess it qualitatively. Therefore, my role here is to demonstrate the need for adjustments (Chapters 1, 2, 3, 4) and suggest the recommendations (Chapter 4) that would allow regulators to act instead of remaining passive in the light of extremely contrasting institutions bound by the same general provisions.

Further, as mentioned above, the focus is on G-SIB-specific rules as the ones aiming to differentiate them from the rest of the banking system and simultaneously to stymie potential negative externalities of their systemic importance. The entire universally binding system of banking law in the USA and in the EU, or the place of G-SIB-oriented rules in these regimes, are not analyzed, as it would dilute the outcome of this research and would require a contribution much more voluminous than one book. For the purpose of the described assessment, G-SIB-oriented provisions are sufficient as the ones that aim directly to address G-SIBs' 'systemic-ness'.

Place in existing literature

This book seems necessary to fill the gap in G-SIB-related literature. Undoubtedly, these institutions constitute a topic of numerous publications, especially since the Global Financial Crisis. However, none of them examine G-SIB-specific regulation of both the USA and EU. Many describe the US legal perspective and advocate structural measures.[25] Others refer to functioning of banks in general.[26] Even if they mention G-SIBs, it is usually just to stress that they are regulated slightly differently.[27] Also, some scholars naturally mention G-SIBs in the context of the broader analysis of systemic risk or financial stability, but refrain from looking closer at individual institutions.[28] Therefore, this book constitutes a unique contribution to literature on banking regulation, for the first time presenting comprehensive analysis of international standards on G-SIBs and both US and EU G-SIB-specific provisions.

Furthermore, it presents a regulatory approach that is new to banking law (and especially to G-SIB regulation), located somewhere between principle-based

25 For instance Arthur Wilmarth, *Taming the Mega Banks. Why We Need a New Glass–Steagall Act*, OUP, 2020, or Zephyr Teachout's *Break 'Em Up. Recovering Our Freedom from Big Ag, Big Tech, and Big Money*, All Points Books, 2020.

26 Anat Admati, Martin Hellwig, *The Bankers' New Clothes. What's Wrong with Banking and What to Do About It*, Princeton University Press, 2013.

27 Iris H-Y Chiu, Joanna Wilson, *Banking Law and Regulation*, Oxford University Press, 2019.

28 Douglas Arner, Emilios Avgouleas, Danny Busch, Steven Schwarcz (eds), *Systemic Risk in the Financial Sector. Ten Years after the Great Crash*, CIGI, 2019.

and rule-based strategies. The concept described below could be perceived as a specific example of a hybrid goal-based approach, as described by Christopher Decker.[29] It relies mostly on a principle-oriented approach but ought to be additionally improved by prescribed guidance. In this vein it expands the theory of responsive regulation by Braithwaite and Ayres.[30]

Finally, this book contributes to literature on discretion and its dark side – regulatory capture. Currently the scholarly focus seems to have shifted slightly towards discretionary powers in the context of utilities,[31] and this contribution brings the attention back to banking law. In the attempt to provide objective analysis, the book examines discretion and capture thoroughly – looking at the benefits these tools can bring, assessing potential problems, and describing the behavioral background of motivation to use discretion.[32] It also translates into specific frameworks for G-SIBs some of the general recommendations suggested for example by Lawrence Baxter[33] or John Armour et al.[34]

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29 Christopher Decker, 'Goals-Based and Rules-Based Approaches to Regulation', *BEIS Research Paper*, Number 8, May 2018.

30 Ian Ayres, John Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate*, Oxford University Press, 1992.

31 Despoina Mantzari, Francesca Pia Vantaggiato, 'The paradox of regulatory discretion', Law & Policy, 27, October 2020.

32 Richard Thaler, Cass Sunstein, *The Nudge: Improving Decisions About Health, Wealth, and Happiness*, Penguin Books, 2009.

33 Lawrence Baxter, '"Capture" in financial regulation: Can we channel it toward the common good?' Essay, Cornell Journal of Law on Public Policy 2011, 21/175.

34 John Armour, et al., *The Principles of Financial Regulation*, Oxford University Press, 2016.

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1 G-SIBs in the USA and in the EU
Diversity, not unity

Around 70% of adults in the world have a bank account, and in our European bubble it seems like almost every grown-up has one.[1] Some additionally invest or engage in more complex banking. Undeniably, finances surround us and define the world we live in. However, for many it does not matter what the institutions behind all this are, as long as their money is (seems?) safe. Maybe it is better this way, as these entities are not easy to comprehend. When *Rolling Stone* published Matt Taibbi's blunt article about Goldman Sachs, the metaphor used there was scary. But the reactions were even scarier. I remember talking to one of the former investment bankers and asking whether this 'great vampire squid wrapped around the face of humanity'[2] description is not a bit of an exaggeration, even considering Goldman's omnipotence. He looked at me and said: 'A squid, with its eight tentacles? Are you joking? Even a giant centipede would be an understatement. Multipede sounds more accurate.' At that point I got confused, but in hindsight I cannot believe how naive I was to underestimate the company's strength.

Global systemically important banks (G-SIBs)[3] constitute a very peculiar group of financial institutions, or networks of institutions rather, that emerged on a wave of the shift from traditional banking models towards more sophisticated and diversified schemes of operation and funding. They are commonly perceived as large and complex conglomerates combining many financial services and engaging in cross-border activities. But they are much more than this. The aim of this chapter is to demonstrate that, even though often generalized[4] or allocated

1 Data according to World Bank, *Global Findex 2017*, https://globalfindex.worldbank.org, accessed 29 November 2021.

2 Matt Taibbi, 'The Great American Bubble Machine', *Rolling Stone*, 5 April 2010.

3 The framework for G-SIB designation and origins of other terms referring to G-SIBs are analyzed in Chapter 3.

4 In the pre-crisis literature, generalizations are common; see for example Anthony Saunders, Roy Smith, and Ingo Walter, 'Enhanced Regulation of Large Complex Financial Institutions' in Viral V. Acharya and Matthew Richardson (eds), *Restoring Financial Stability. How to Repair a Failed System*, Wiley Finance, NYU Stern School of Business, 2009, pp. 139–156; 'The Trials of Megabanks', *The Economist*, 29 October 1998; Gary H. Stern, Ron Feldman, 'Big Banks and Big Bailouts', *Wall*

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under similar business models, G-SIBs do not constitute a homogenous group, especially with regard to pursued activities, sources of funding, and risks. Also their legal structure and ownership patterns differ.

The first part of this chapter presents a general background of banking transformation, meaning the forces that brought about the change and the resulting modern financing approaches, activities, and risks. This analysis leads to the presentation of the basic business models stemming from the described shift in the banking industry, provides the terminology crucial for further consideration, and thus facilitates the understanding of the functioning of G-SIBs. Consequently, the second part builds on these general results and turns to the particular case of systemic institutions. On the basis of individual examples, it is outlined how they followed different paths when growing to their current magnitude and what the pattern of each transformation was – starting with the particular combination of activities, their growth in size and mergers, to the internationalization of such institutions. The third part utilizes the previously presented historical individualism of G-SIBs and turns to their modern heterogeneity. The core differences become most visible when the highly individualistic character of G-SIBs is outlined through the analysis of current activities, funding, risks, and legal and ownership structures. Bearing that in mind, examples of methodologies assigning these banks to business models are assessed. Finally, diversity of megabanks is presented against the backdrop of the most topical issues that will define the future of G-SIBs – their relation with Big Tech, role in the green transformation, and impact of the COVID pandemic on their functioning.

1.1 General shift from traditional banking business

Banking institutions have always been controversial. Already Thomas Jefferson believed that 'banking establishments are more dangerous to our liberties than standing armies.'[5] Even though he was mainly referring to the currency-issuing powers, there is undoubtedly a universal frightening truth to this statement. However, the purpose of standing armies is sometimes to prevent liberties from being endangered. What is the reasoning behind the existence of banks then? Banks are a part of the process 'through which savings are channeled into productive activities'.[6] Arestis and Karakitsos use depict the core function of banking as 'facilitation of the allocation and deployment of economic resources over time

Street Journal, 27 January 2004. The most blatant generalization with regards to G-SIBs are credit ratings that assign the same rating to institutions that differ vastly in many aspects, from funding to risk creation.

5 Robert Lenzner, 'Thomas Jefferson Warned The Nation To Beware The Power Of The Banks', *Forbes*, 6 November 2011.

6 Franklin Allen, Elena Carletti, Xian Gu, 'The Roles of Banks in Financial Systems' in Allen N. Berger, Philip Molyneux and John O. S. Wilson (eds), *The Oxford Handbook of Banking*, Oxford University Press, 2015, p. 27.

and place to socially useful purposes.'[7] However, the exact way how banks have been fulfilling these roles has evolved over time, in response to both external and intrinsic factors.

1.1.1 Traditional banking and change-driving forces

Originally, banking business was based on two simple relations – with depositors and borrowers. People wanting to save and earn on those savings would entrust their money to a bank in return for (normally modest) interest. On the other side of this equation, individuals in need of money could turn to a bank and be granted a loan, which they would repay to a level gradually increased by interest. Banks would fund such lending activity with accepted deposits. These tasks of deposit custody and credit creation constitute the core of the banking role of financial intermediaries.[8] However, the uniqueness of banks as institutions lies in two closely intertwined concepts. The provision of credit from a pool of deposits would not vastly differ from a simple loan between two individuals, if it was not for maturity and liquidity transformation. The former refers to the mismatch in maturities between long-term loans and deposits retrievable on demand. A bank needs to ensure that it has enough funds, should clients decide to withdraw their money. In turn, liquidity transformation constitutes a designation of the same phenomenon but from a different angle. Namely, due to their long maturities, loans are highly illiquid, in contrast to very liquid deposits.

In this traditional, simplistic set-up, only two main types of risks are present. Credit risk stems from the threat of a borrower defaulting on his repayment obligations. Normally, banks try to mitigate this by careful assessment prior to granting a loan and by prudent monitoring of borrowers afterwards. The second type of risk is closely related to the deposit service. Its main advantage, opportunity to retrieve funds on demand, carries a danger that many depositors will claim their funds at the same time (bank run). As banks use deposits to grant loans, they obviously do not have at their disposal sums equal to the level of deposits accepted. Consequently, in the event of a run, a liquidity risk materializes.

For years, the traditional approach to banking business prevailed worldwide. Only in the 19th century, during the industrial revolution, did banks massively start to alter their mode of operation in order to adjust to the growing challenges of the real economy. This transformation process was revived in full force after two world wars. Throughout these years one could identify many forces that drove this change.

7 Philip Arestis, Elias Karakitsos, *Financial Stability in the Aftermath of the Great Recession*, Palgrave Macmillan, 2013, p. 193.

8 Some claim that banks are actually money creators, not only financial intermediaries. Namely, a bank by means of granting a loan creates a special type of deposit on its liabilities side – obligation to pay out the money promised in the loan contract. See Louis Angeles, 'On the Nature of Banks', *Kyklos*, 2019, 72/ 3.

1.1.1.1 Capital and ideological flows that globalized banking

In the second half of the 18th century, financing needs expanded mostly towards the funding of utilities. Loan-for-deposit balances required modification for the sake of further industrial and technological progress. An abundance of opportunities brought about a harsh divide in society. The more educated and wealthier people benefited from galloping industrial development, while poorer people started an exodus to the cities in search of factory jobs and wages higher than their farming-based earnings. In this era, known as the 'first globalisation'[9] (usually dated around 1870–1914), one would see banks exploring the previously absent opportunities of financing railways and mines abroad. They also engaged in international trade.

However, further expansion, especially at the international level, was stalled by two world wars and the following Bretton Woods era. As capital controls during World War I and II stemmed mostly from obvious distrust among the countries, the post-war Bretton Woods system had ideological, mostly Keynesian, roots. Even though the Bretton Woods conference and the establishment of the International Monetary Fund would seem to strike a tone of international cooperation, the agreement also included permission for the countries to control capital flows. As Keynes himself stressed, 'control of capital movements, both inward and outward, should be a permanent feature of the post-war system.'[10] And so it was for almost 30 years, until the Bretton Woods scheme started falling apart in the 1970s.

The new era in the history of economics started. Some brand new or just a bit forgotten economic ideologies finally rose to prominence. Led by Eugene Fama, who coined the efficient market hypothesis (EMH), claiming that prices constitute an ideal reflection of all information available and thus the market can regulate itself, scholars provided more and more theories indicating that markets 'can take care of their own problems'[11] and thus government intervention seems redundant or even harmful. Markowitz pointed to efficient portfolios combining risks and returns by means of diversification as an ultimate protection from loss. Modigliani and Miller undermined concerns about the negative impact of leverage, stating that the cost of capital remains unchanged regardless of the level of leverage in comparison to equity. At that time, the outlier theory of Hyman Minsky, that bubbles and failures are inherent to the functioning of the financial system, did not seem to be highly regarded.

Societies continued to evolve, especially after the fall of communism in Central and Eastern Europe. 'Reaganomics'[12] in the USA and a quickly spreading

9 Carlo Altamura, *European Banks and the Rise of International Finance. The post-Bretton Woods era*, Routledge, 2017, p. 1.

10 As quoted in Eric Helleiner, 'Controlling capital flows "at both ends": A neglected (but newly relevant) Keynesian innovation from Bretton Woods', *Challenge*, 2015, 58/5.

11 Moorad Choudhry, Gino Landuyt, *The Future of Finance: A New Model for Banking and Investment*, Wiley, 2011, p. 77.

12 Reaganomics is a term describing political and economic strategy in the USA during the presidency of Ronald Reagan. See William A. Niskanen, 'Reaganomics' in *The Concise Encyclopedia of Economics*, www.econlib.org/library/Enc1/Reaganomics.html, accessed 29 November 2021.

anti-socialist movement in Europe led to growing inequalities followed by the emergence of a new group of bank clients – wealthy entrepreneurs – who did not need a simple loan but much more sophisticated sources of financing as well as asset management services. As White put it, the 'emphasis must shift away from financial products directed to the young and poor (consumer credit and mortgages) to asset management services for the old rich.'[13]

As a result of the ideological and social changes, limitations on international capital flows were gradually abandoned. In the 1960s, the market for dollars held outside of the USA, called the Euromarket,[14] gained enormously in importance. After the dismantling of fixed exchange rates under the Bretton Woods system, services concerning Eurodollars, loans and credits expanded again. The Eurocurrency market almost tripled from $177 billion to $575 billion and the Eurobond market increased six-fold.[15] Dirk Schoenmaker refers to a study by the Committee on the Global Financial System indicating that the three main drivers of international expansion are the 'pursuit of new business opportunities, higher profit margins in host markets and incentives to follow customers abroad'.[16] For instance, the beneficial interest rates earned on currency exchanges motivated banks to establish a presence abroad. US banks opened many branches and subsidiaries in Europe,[17] while both American and European banks started operations in London, a city slowly becoming the center of the financial world.[18] Capital allocated abroad increased ten times between 1980 and 2000.[19]

1.1.1.2 Information technology and financial innovations

Global expansion and an increase in international capital flows were accompanied by technological as well as financial developments. A simple deposit/loan exchange was not enough to meet new needs and utilize the international opportunities. Banks therefore started looking for alternative products and activities, often turning to new technological developments.

It is problematic to establish causality between the emergence of financial novelties and IT/communication progress. On one hand, technology[20] enabled

13 William R. White, 'The Coming Transformation of Continental European Banking?', *Bank of International Settlements Working Papers*, 1998, 54.

14 See Youssef Cassis, *Capitals of Capital. The Rise and Fall of International Financial Centres 1780–2009*, Cambridge University Press, 2010, pp. 219–223.

15 Ibid, p. 236.

16 Dirk Schoenmaker, *Governance of International Banking: Financial Trilemma*, Oxford Scholarship Online, 2013, p. 4 in Chapter 3.

17 By 1975 American banks are said to have established 113 branches and 29 representative offices in Europe. Ibid, p. 226.

18 Charles Goodhart, *The Basel Committee on Banking Supervision – A History of the Early Years 1974–1997*, Cambridge University Press, 2011.

19 Cassis, *Capitals of Capital*, p. 244.

20 For analysis of technological development at commercial banks see W. Scott Frame, Larry Wall, Lawrence J. White, 'Technological Change and Financial Innovation in Banking: Some

banks to develop new instruments, while on the other it incentivized them to become creative and utilize technological advancements for financial purposes. Even though innovations had accompanied the transformation of banking since the industrial revolution, the truly ground-breaking period started in the 1980s along with the universalization of information technology. Computers and the internet contributed to the shift from traditional banking in three different ways. Firstly, the availability of information inadvertently changed the lending business, improving the delegated monitoring and administration of deposits and loans. Paradoxically, banks have become both closer and more distant to their clients. Technology enabled them to utilize economies of scale, hence they slowly turned away from traditional relationship-based banking. Financial services provided by these institutions have become more and more anonymous. Yet, thanks to technology, banks were able to reach out to more people and internationalize their services by transcending national borders. Secondly, IT also changed the markets, which finally could respond to new information quickly enough and therefore contributed to this new cult of trust in the market.[21] Thirdly, communication technology laid the foundations for the business of unbundling, pooling, and shifting risks, which eventually would change the world of finance forever.

Indeed, as finance became increasingly complex, banks started to search for hedging instruments that would mitigate or ideally shift the risk entirely. In the 19th century the use of derivatives gained momentum. These instruments were known already in ancient times,[22] but only then did financial institutions start exploiting their features on a massive scale. The basic derivative contracts are forwards, futures, options, and swaps. Depending on the type of contract, a derivative allows many different risks to be hedged, as its value is derived from the value of an underlying asset. Thus, banks can for instance swap interest rates or protect themselves against falling asset prices, or even against a borrower's default. This feeling of security provided by derivatives disincentivized banks in the area of borrower and market monitoring. There is also another side to the hedging function of derivatives – speculation. Instead of profiting directly from traded instruments or loans, as banks have done for years, they started betting on swings in security prices, rates, and borrower credibility. The size of this meta-market quickly exceeded regular securities trading.[23]

The second innovation further utilized information technology. Securitization is a process of turning illiquid assets into transferrable valuables. By means of pooling and selling loans to entities created especially for that purpose (special

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Implications for FinTech', in Allen N. Berger, Philip Molyneux, and John O. S. Wilson (eds), *The Oxford Handbook of Banking*, Oxford University Press, 2019.

21 See Section 1.1.1.1.

22 Steve Kummer, Christian Pauletto, 'The History of Derivatives: A Few Milestones', *EFTA Seminar on Regulation of Derivatives Market*s, Zurich, 3 May 2012.

23 According to the BIS statistics, the notional value of the OTC derivatives market is currently $559 trillion, but the market value of these contracts is $11.6 trillion. See BIS, *Statistical release: OTC derivatives statistics at end-December 2019*, 7 May 2020.

purpose vehicles – SPVs), banks have been able to relieve their balance sheets and deceptively decrease their risks. Consequently, the relationship between borrowers and banks, including monitoring, loosened, as a default on a loan would not inflict any loss for the institution granting it.

1.1.1.3 Political and regulatory adjustments

Both expansionary capital flows and innovations have revealed the inadequacy of regulation with regards to a fast-changing banking reality. Instead of incentivizing regulators to tailor the rules accordingly, these factors contributed to the deregulation of the banking business.[24]

The regulation of banking has followed the upswings and downswings of the economic cycles. After the Great Depression, the provisions in Western Europe and Northern America were tightened, in order not to allow such a crisis to happen again. This approach was also in line with public interest theory on banking regulation. Namely, regulators were perceived as preventing market failures or the inefficient allocation of resources. Their actions lay in the public interest and reinforced social welfare.[25] However, the memory of the Great Depression soon faded away and what remained was poor economic performance of the banking system. Regulatory measures applicable to banks but not to newly forming non-bank institutions put the former at a competitive disadvantage. Consumer lending provided by banks fell by 20 percentage points.[26] Mutual funds, government-sponsored enterprises, and even corporate entities like General Motors started to constitute a threat to banking. The previously mentioned neoliberal economic theories also pointed to a need for deregulation. A public interest approach to banking regulation was gradually replaced by accusations of private interest – scholars believed that regulators were either incentivized by the political perspective of re-election or corrupted by the entities they are supposed to scrutinize. Under those circumstances, a movement of deregulation of banking started both in Europe and in the USA.

First, interest rate ceilings were eliminated from the famous American Regulation Q, allowing banks to benefit from market fluctuations. Then, the Riegle–Neal Interstate Banking and Branching Efficiency Act of 1994 was passed, enhancing banks' expansion prospects by means of allowing interstate mergers and branching.[27] Five years later the repeal of the Glass–Steagall Act

24 Sophie Harnay, Laurence Scialom, 'The influence of the economic approaches to regulation on banking regulations: a short history of banking regulations', *Cambridge Journal of Economics,* 2016, 40, p. 408.

25 Ibid, p. 403.

26 Iren G. Levina, 'The Sources of Financial Profit: a Theoretical and Empirical Investigation of the Transformation of Banking in the US', *University of Massachusetts Amherst Open Access Dissertations*, September 2012, p. 24.

27 Kevin Stiroh, 'Diversification in Banking' in Allen N. Berger, Philip Molyneux, and John O. S. Wilson (eds), *The Oxford Handbook of Banking*, Oxford University Press, 2015, p. 228.

of 1933 prohibiting combining commercial and investment activities under one roof added further fuel to the process of broadening the spectrum of offered services. This bill, the Gramm–Leach–Bliley Act, not only allowed for mergers with securities or insurance firms but also gave a green light to engaging in innovative activities within one institution. A similar process took place in London, where a reform of London Stock Exchange, also known as the 'Big Bang', allowed banks to buy many investment and brokerage firms, creating a range of market-based opportunities.[28]

Simultaneously, in continental Europe, arguably the most significant and innovative international project in the post-war era was taking shape. Participants of this initiative, now known as the European Union, concentrated on the establishment of the common market, which was to become reality by the end of 1992 according to the Single European Act of 1987. In contrast to the USA, the liberalization of banking regulation in Europe took the form of harmonizing reforms and not necessarily dismantling existing rules. The first of these efforts enabled the formation of the European internal market. Namely, Directive 88/361[29] was passed in 1988 and introduced the most finance-oriented of the four freedoms – the free movement of capital.[30] It eliminated all restrictions of capital movements, liberalizing both monetary and quasi-monetary transactions[31] between Member States. The second development leading towards an open and liberal banking system materialized in the form of the Single Banking License introduced by the Second Banking Directive,[32] which permitted the setting up of branches in other EU countries without any further restrictions, once a credit institution had obtained a banking license in one of the Member States. Lastly, the introduction of the euro in 1999 'eliminated currency risk and provided a further push for financial integration'.[33]

1.1.2 Modern activities of banks

One of the obvious symptoms of the dawn of traditional banking was the growing involvement of banks in activities other than the basic borrower/depositor scheme. With capital flowing freely, accessible international markets, more sophisticated clients demanding higher returns, technological innovations offering broader possibilities, and fewer regulatory hurdles, banks' operations expanded in new directions.

28 Cassis, *Capitals of Capital*, p. 246.

29 Council Directive 88/361/EEC, OJ L 178, 8 July 1988.

30 Paul Craig, Gráinne de Burca, *EU LAW. Text, Cases, and Materials*, Oxford University Press, 2015, pp. 721–726.

31 For instance, transactions concerning loans, securities, bonds, or other financial instruments usually traded via capital markets.

32 Second Council Directive 89/646/EEC, OJ L 386, 30 December 1989.

33 Franklin Allen et al., 'Cross-Border Banking in Europe: Implications for Financial Stability and Macroeconomic Policies', *CEPR*, 2011, p. 2, https://voxeu.org/sites/default/files/file/cross-border_banking_in_Europe.pdf, accessed 29 November 2021.

Firstly, new activities took the form of modernization of the lending business. Traditional credit agreements did not meet the needs of companies wanting to secure funding, so banks had to adjust. They started to join forces, creating banking consortia and providing syndicated lending services. Syndicates are groups of banks which mutually provide a loan to one company, either in the form of a fixed amount of funds or credit lines. Normally, the size and complexity of financed projects would render the provision of funding impossible if it were to be provided by one bank only. Banks also started to offer different, more flexible forms of lending – from credit cards for private customers to commercial overdrafts. Apart from credit services to individuals and companies, they also expanded the range and scale of loans granted to governments and also other banks. Interbank lending has turned into a separate line of business, and its development changed the structure of banks' liabilities side.[34]

However, these modifications to the lending business were not sufficient to address the demand for capital. Banks also engage in market-based operations, proving that securities such as bonds or equities can constitute a viable alternative for loan-based funding. The tendency towards market activities has been visible both in the decrease of loan-to-assets ratios and a rise in banks' share of non-interest income.[35] The most important operations include the underwriting of securities, proprietary trading, market-making, brokerage, and custody. These tasks are closely intertwined and create a framework of securities-related services.[36] Underwriting means that a bank prepares a listing (usually an initial public offering (IPO)) of a company, assesses risks, conducts research regarding the most beneficial price, and chooses the strategy. The underwriter also obliges itself to buy up the remaining issued securities so that the company is certain it will raise the desired amount of capital. In exchange for these services, the bank receives a fee, usually in the form of a premium or a share of profits. In turn, proprietary trading, market-making, and brokerage refer to the process of the buying and selling of securities. Each of these actions is undertaken for different purposes. Proprietary trading encompasses operations of banks that decided to profit by means of conducting trades on their own behalf. They engage in trades based on their balance sheet and earn profit (or incur loss) directly on the market and not in the form of commissions received for trading with customers' assets.[37] Market-making is perceived as a 'positive' version of proprietary trading. Market makers engage in trades in order to ensure liquidity in the market. At the price mirroring supply and demand, they stand ready to buy or sell a given security, so that whenever someone wishes to conclude such a transaction, he is able to do so. In contrast, brokerage is focused on the individual client. Brokers execute orders for their investors, sometimes taking decisions for them, depending on the discretion

34 See Section 1.1.3.

35 See Luc Laeven, Lev Ratnovski, and Hui Tong, 'Bank Size and Systemic Risk', *International Monetary Fund Staff Discussion Note*, May 2014, p. 8, Figures 3 and 4.

36 For the sake of clarity, I refer here to securities in a broad sense.

37 An entity engaging in trades on its own account can be called broker-dealer.

granted in the brokerage contract. They receive commission from the clients. Another activity of banks confirming their market presence is custody. Securities or other assets are kept by a bank to minimize the risk of theft and loss. Custodians also often provide additional services, such as finalization of transactions (settlement), collection of interest payments, and general account management.

Apart from the broadening of lending services and active involvement on the capital markets, banks started to utilize their financial expertise and engaged in advisory activities, asset management, and insurance services. Regarding advisory operations, they have developed departments specializing in all kinds of financial aspects, from mergers and acquisitions (M&A) and investments to support for governments or supranational institutions in the area of financing or deleveraging. Asset or wealth management can also partially rely on an advisory role, but more often active management of provided funds is left to the institution's discretion.

The shift from the traditional areas of operation has also left its footprint on banks' balance sheets. It became more onerous to assess what kind of business is prevailing at a given institution. Positions representing customer and commercial loans, trading assets, and loans to other banks no longer constitute accurate indicators of banks' activities. Many of the current banking activities, such as credit lines, guarantees, letters of credit, or some securitizations, are not mirrored on the balance sheets, therefore blurring the determination of a bank's major specialization.

1.1.3 Modern ways of funding

The transformation of banking not only modified the tools used to channel funds to the real economy, such as loans or bond issues, but it also influenced the banking funding patterns. Originally, banks relied on deposits and equity as sources of financing (so-called retail or stable funding). However, their new market-based activities required having more liquidity at their disposal. The traditional understanding of a 'deposit' was thus redefined. Now, it refers not only to the typical current or savings accounts of individuals as it was prevailingly understood in the past. Deposits also refer to funds provided by institutional investors, other banks, and governments and are subject to the accepting bank's investment management decisions. In that sense, deposits can also constitute a relatively stable source of funding for trading and other market-based activities.

Unfortunately, increasing the pool of deposits is often not a viable solution, as they cannot be collected swiftly enough, and reaching the required sums could be problematic to impossible. Raising equity does not always constitute a viable alternative, as it can dilute ownership and send the wrong signals to the market. Consequently, counting on deposits and equity as the main sources of financing was no longer feasible given the scale and complexity of services offered by banks. Thus, they not only redefined the term deposit but also reached for new sources of funding.

Namely, banks turned to other financial institutions for financing. So-called wholesale funding encompasses two main sources of liquidity – interbank

borrowing and repurchase agreements. The former relies on short-term debt instruments, very often in the form of commercial papers. As this form of borrowing is unsecured, counterparties are very cautious and tend to withdraw funds at any sign of problems with the borrower's solvency. In turn, repurchase agreements (repos) constitute secured transactions. A bank in need of liquidity sells securities to another financial institution for a price lower than their market value and is obliged to repurchase sold assets within the set time limit. These securities serve as collateral should the borrower be unable to pay the agreed sum. The difference between the market price of assets and their repo price (known as a 'haircut') should protect the lender against value fluctuations of received collateral. Additionally, as a secured creditor, the lender ranks higher in the event of insolvency than demand depositors and unsecured bank lenders. On the other hand, the haircut value adjustment can be problematic for the borrower. When the market value of assets goes down, he will be able to secure much less new funding, and repo counterparties could refuse to roll over the existing agreements in fear of the borrower's inability to eventually repurchase collateralized securities.

The costs of interbank funding or haircuts have thus become indicators of banks' financial health. As Babihuga and Spaltro have proven in their IMF Working Paper with regards to unsecured funding, these costs depend on an institution's creditworthiness, return on its market value, and level and quality of capital.[38] As the financial counterparties providing this financing are sophisticated actors, they adjust the prices of funding quicker than it happens in the case of interest rates for deposits, which answer mostly to market-wide movements.

1.1.4 Risks of modern banking

New activities of banks and corresponding ways of funding contribute to higher profit and increase the client base as well as scales and scope of operations. Yet they also generate modern forms of risks, absent in the world of traditional lender/borrower business.

Firstly, as in the case of novelties altering basic lending relations, credit risk has also been transformed. Risk of default of a counterparty has obviously always been present in the banking world. However, with an extended range of activities, the network of counterparties has also expanded. Credit risk now also refers to banks on the other end of interbank lending, to mutual funds and hedge funds participating in repos and to contractors in derivatives trading. Additionally, some components of the credit risk, such as lines of credit or guarantees, are not accounted for on a bank's balance sheet. Thus, risk that originally could have been mitigated by diligent monitoring, and preapproval of a borrower is now much more complex and unpredictable.

38 Rita Babihuga, Marco Spaltro, 'Bank Funding Costs for International Banks', *IMF Working Paper*, April 2014, WP/14/71.

Banks' presence on the capital markets has also exposed them to new kinds of risks. Generally, entities engaging more in market-based activities react to upswings and downswings of the financial cycle, whereas institutions sticking to the traditional model would respond primarily to the real economic cycle.[39] Consequently, banks started experiencing risks related to fluctuations of the market (market risk). For instance, a sudden drop or rise in asset value can bear negative consequences, as most of the banks' assets are marked-to-market. Firstly, an inability to sell (or buy) an asset can be crucial either for funding purposes or to fulfil obligations of derivative contracts.[40] Further, banks tend to amplify asset-price cycles, because when the prices rise and banks' assets are worth more, it is easier to secure repo funding and as a result continue lending, which would lead to a further increase in prices.[41] Also, securitization transformed credit risk into liquidity risk or even funding risk,[42] as problems with selling assets or getting repos rolled over can quickly turn into insolvency if a bank starts defaulting on its debt and its credibility on the market falls. Even temporary skepticism or panic among funding counterparties can be very costly. This risk is perceived as a consequence of changes in banking funding. Before, the only liquidity threat was related to a potential bank run in the form of deposit withdrawals, and even that danger has been mitigated by deposit insurances. Further, in relation to the market, banks trading in currencies are sensitive to rapid changes in exchange rates (foreign exchange risk). Similarly, general fluctuations in interest rates (interest rate risk) can be detrimental to both market-based and lending-oriented activities of financial institutions. As asset prices depend on the interest rates, these changes contribute to market risk. Inversely, high interest rates on deposits and credit contribute to a decrease in the liquidity of the market, curb lending, and hinder efforts to increase funding. In turn, low interest rates prompt a liquidity flood of the markets.

As banks have become more complex and started engaging in a variety of operations both domestically and internationally, also non-financial risks have gained in importance. Currently, increasing attention is paid to operational risk, encompassing potential problems with IT but also human/employee failure. The internationalization of banks' activities forces them to operate under multiple legal regimes, creating compliance risk. Also due to changing provisions of law a bank could face regulatory risk. Increasing interconnectedness leads to systemic risk.[43] These are only examples, as the group of non-financial risks is

39 Rym Ayadi et al., 'Banking Business Models Monitor 2015 Europe', Alphonse and Dorimène Desjardins International and Institute for Cooperatives International Research Centre on Cooperative Finance, 2016.

40 That was especially visible in the famous case of Porsche. See Zachery Kouwe, 'Hedge Funds Sue Porsche for Billion Lost on VW', *Dealbook by The New York Times*, 25 January 2010.

41 Markus Brunnermeier, Ricardo Reis, 'A Crash Course on the Euro Crisis', *NBER Working Paper*, No. 26229, September 2019.

42 Rym Ayadi, *Banking Business Models: Definition, Analytical Framework and Financial Stability Assessment*, Palgrave Macmillan, 2019, p. 35.

43 See more in Section 1.3.1.3.

constantly growing, recently especially in the context of environmental protection and sustainability.

1.1.5 Modern banking business models

Naturally, banks started combining different activities and funding sources in order to create the most profitable business model for each of them. Historically, first in London, but later also in continental Europe and in the USA, three basic models were distinguished.[44] Deposit banks engaged in deposit-taking and lending and represented a business scheme referred to as 'traditional' in that thesis. Merchant banks constituted more financial institutions than banks in a strict sense, as they provided financial advice and facilitated securities issuances. International banks focused on overseas activities. The transformation of banking services and the development of the scale and scope of banks led to the emergence of new models alongside the modified historical ones. There are two main levels of model categorization – according to a bank's main activities or from the perspective of funding.

Starting with the former, retail-oriented credit institutions constitute the modern version of deposit banks. They accept deposits, and their main business focus is granting consumer loans. In contrast, commercial banking refers to operations involving the provision of services to bigger and more complex entities as counterparties. Commercial banks normally facilitate international trade and cross-border payments and coordinate syndicated lending. In turn, wholesale banks mostly support other financial institutions – they specialize in interbank lending alongside some trading operations. Investment or trading banks, as the name indicates, concentrate on trading, with a particular focus on derivatives and investment services such as underwriting or advisory. With regard to funding structure, credit institutions can be divided into two main groups. Retail-funded banks rely on stable funding compiled mostly from deposits and equity, whereas wholesale-funded counterparts finance themselves mainly in the interbank markets and with other short-term debt.

Banking entities tend to mix-and-match their main business lines and forms of funding, creating hybrids such as banks providing mostly retail services but funded significantly with wholesale debt. Combinations of investment and retail services are also possible thanks to evolving legal structures enabling the creation of complex multilevel networks under the roof of one parent company or holding. Among those hybrids, one has risen to prominence and become a model on its own. The so-called universal banks combine all of the above activities and financing sources. They provide credit to the real economy, both at retail and

44 As reported by William Blair, 'Liberalisation and the Universal Banking Model: Regulation and Deregulation in the United Kingdom', in Joseph Norton, Chia-Jui Cheng, Ian Fletcher (eds), *International Banking Regulation and Supervision: Change and Transformation in the 1990s*, Graham and Trotman, Martinius Nijhoff Publishers, 1994.

commercial levels, but also have a significant trading book, participate actively in the interbank market, and engage in advisory services. Their funding is based on deposits, equity as well as interbank loans, and repos. This variety of activities and financing remains controversial. On one hand, it is praised for diversification, but on the other it can be perceived as 'putting Tesco together with Harrods'.[45] The majority of empirical studies prove that the increase in risk experienced by universal banks offsets the advantages of diversification.[46] Also, the term 'universal' says everything and nothing at the same time, because it does not reflect a particular bank's main focus, nor does it point at any prevailing business line. Especially in the case of the biggest and most complex banking institutions, almost all of them could be categorized as universal, while their historical development, as well as current operations, show how significantly they differ from each other.

1.2 Rise of the G-SIBs – differences at the outset

During this transformation of the banking industry, even though almost all banks tweaked their mode of operation, a particular group would attract attention in the years to come. G-SIBs, as they were dubbed many years later,[47] exploited the changing forces in the most efficient way and established their position in the banking world. As banker Jacob Rothschild rightly predicted in the context of deregulation, 'the two broad types of giant institutions, the worldwide financial service company, and the international commercial bank with global trading competence, may themselves converge to form the ultimate, all-powerful, many-headed financial conglomerate.'[48]

However, the paths to the top that each of those institutions has chosen vary significantly and constitute a starting point for a viable assessment of how individualistic and different G-SIBs are today. In contrast to the common homogenic view,[49] not all G-SIBs started engaging in all activities at once, pursued transformational mergers, or have been active internationally for most of their existence.

45 *The Economist*, 'The Fall of the Universal Bank', 21 November 2012.

46 Robert DeYoung, Karin Roland, 'Product mix and earnings volatility at commercial banks: Evidence from a degree of total leverage model', *Journal of Financial Intermediation*, 2001, 10; Kevin Stiroh, 'A portfolio view of banking with interest and noninterest activities', *Journal of Money, Credit and Banking*, 2006, 38/5; Kevin Stiroh, Adrienne Rumble, 'The dark side of diversification: The case of US financial holding companies', *Journal of Banking and Finance,* 2006, 30/8.

47 See Section 3.2 and Table 3.5.

48 Jacob Rothschild quoted in David Kynaston, *City of London. The History*, Random House, 2012, p. 558.

49 See for instance Saunders, Smith, and Walter, 'Enhanced regulation', pp. 139–156; Jim Sivon, 'The Importance of Big Banks to the U.S. Economy. Remarks of Jim Sivon to Students Participating in the Duke University Summer Institute on July 24', August 2013, https://vdocuments.mx/the-importance-of-big-banks-to-us-economy-barnett-very-largest-jp-morgan.html, accessed 29 November 2021.

1.2.1 Combining and expanding

Some of them were not even originally established as banks in the traditional sense. Today's most systemically important bank in the world, JP Morgan Chase & Co., started as the Manhattan Company and was to provide 'pure and wholesome water'[50] to the citizens of New York City. Wells and Fargo established their Californian firm as an express delivery company providing banking services only on the side. Also State Street's original business focus circled around maritime trade and the shipping industry. One could argue that maybe only American G-SIBs primarily stem from these differentiated commercial backgrounds and European systemic banks prove to be more uniform in their origins. On the contrary, G-SIBs from Europe have also shown high levels of individualism from the very beginning. Deutsche Bank's original aim was to 'promote and facilitate trade relations between Germany, other European countries and overseas markets',[51] a highly internationalized goal for the first half of the 19th century. In turn, predecessors of BNP Paribas shared more national raison d'être to support the economic development of their country. Two forerunners of BNP, Comptoir National d'Escompte de Paris and Comptoir National d'Escompte de Mulhouse, started as discounting houses, entities buying and selling bills of exchange and promissory notes in order to support Parisian publishers and booksellers as well as industry in Alsace. Another future European G-SIB – Banco Santander – was not even directly engaged in financing the real economy. It emerged as a banknote issuance company, and only after turning down the opportunity to merge with the Spanish central bank did it turn into a credit society.

The further evolution of the main activities of G-SIBs was also highly individualistic. While the predecessors of JP Morgan Chase supported infrastructure development, from railroads to Brooklyn Bridge and the pedestal of the Statute of Liberty, one of the future biggest Wall Street players, Goldman Sachs, was not allowed to underwrite railroad financing due to the Jewish heritage of the firm's owners.[52] It moved from trading commercial papers for small businesses seeking capital towards retail underwriting, offshore debt, and currency exchange arbitrage. Finally, it concentrated on trading, underwriting IPOs of big companies, and asset management. Surprisingly, most of these business lines were still mostly relationship-based.

Despite these differences, one could argue that the shift towards broadly understood investment banking followed the same pattern for most of the G-SIBs. Such a statement would also be superficial. Even though many G-SIBs engage in investment banking, they should not be generalized in this regard either. For instance, Deutsche Bank has functioned for years mostly as a commercial bank, financing itself via deposits. It engaged in investment services only in the

50 JP Morgan Chase, 'Our History', www.jpmorganchase.com/corporate/About-JPMC/our-history.htm, accessed 29 November 2021.

51 Statut der Deutschen Bank Aktiengesellschaft, Berlin 1870, pp. 3–4.

52 William Cohan, *Money and Power: How Goldman Sachs Came to Rule the World*, Anchor, 2012.

1980s, due to the profound cultural and generational change that took place in the bank.[53] In turn, the shift towards investments at BNP Paribas was not intrinsic at all – the merger of BNP with Paribas in 2000 brought these operations under the retail bank's roof.

In contrast to BNP and Deutsche, Banco Santander and Wells Fargo have not chosen the capital market-oriented path of expansion. They retained a prevailingly retail and commercial focus, building on widely spread branch networks. Even State Street's evolution, despite its more investment than retail character, proved to be highly distinct from other G-SIBs. The Boston-based giant, after it had become a custodian of the world's first mutual fund, concentrated on custody services and technology. Rather than expanding in many areas, State Street sacrificed its commercial and retail business in order to excel in global custody, trusteeship, and asset management. Technological investments allowed it to remain competitive to the extent that in 1992 *American Banker* dubbed it 'less a bank than a provider of information processing services'.[54]

1.2.2 Growth

It comes as no surprise that banking sectors both in the USA and in the EU increased vastly over time.[55] Within the sector it was the large systemic banks whose size magnified the most, especially at the end of the 20th century.[56] In the USA, it took only ten years to completely reverse the deposit distribution among banks of different sizes. In 1989, deposits held by the biggest banks constituted around 6% of total deposits, while in 1999 already they constituted over 30%.[57] The undeniable growth of G-SIBs provides a basis for a common misconception that their increase in size must have followed a monolithic pattern. However, not all of them merged with and acquired other institutions, simultaneously increasing their assets from within.

Mergers played a different role for each of the G-SIBs. For instance, some of them could be perceived as a result of a merger patchwork. BNP Paribas' rise to systemic-ness has been enabled by mergers. Before 1966, when Comptoir National d'Escompte de Paris merged with Banque National pour le Commerce

53 Ullrich Fichtner, Hauke Goos, Martin Hesse, 'The Deutsche Bank Downfall: How a Pillar of German Banking Lost Its Way', *Spiegel Online*, 28 October 2016, www.spiegel.de/international/business/the-story-of-the-self-destruction-of-deutsche-bank-a-1118157.html, accessed 29 November 2021.

54 Karen Gullo, 'State Street's Carter Plays Hardball with Trust Rivals', *American Banker*, 24 February 1992.

55 See Vítor Gaspar, Philipp Hartmann, Olaf Sleijpen (eds), *Second ECB Central Banking Conference. The Transformation of the European Financial System*, October 2002, p. 43. For instance, in Germany banking assets as a percentage of GNP more than doubled between 1981 and 2000, in Denmark and in France they tripled.

56 See Laeven, Ratnovski, Tong, 'Bank Size', p. 7.

57 William Keeton, 'The transformation of banking and its impact on consumers and small businesses', *Economic Review*, *Federal Reserve Bank of Kansas City*, 2001, 86/125.

et L'industrie and created BNP, the French banking landscape was very scattered and without perspectives for the future incorporation of an international behemoth. The second branch – Paribas – also stemmed from the union between two other institutions: Banque de Paris et des Pays Bas and Campagne Bancaire. In that sense, proving that patterns do not follow national lines, BNP Paribas is similar to JP Morgan Chase, another result of many mergers. Yet, their development differs in one crucial way that is also of relevance in the context of their present operations. In France before 1966 no institution could be seen as a banking leader. As for JP Morgan Chase, JP Morgan & Co. established its position already at the end of the 19th century, and even now that 'part' of operations and history takes precedence over the business stemming from Chase Manhattan Bank.

Even though the Bank for International Settlements (BIS) in its annual report of 1996 stressed proven benefits of combining two institutions,[58] for many G-SIBs mergers were not decisive for their growth. State Street preferred to expand by means of innovation and focus on a relatively narrow field of activities. After one crucial merger with the National Union Bank of Boston, it chose to divest itself of its retail and commercial business. Those parts of State Street were consequently sold to other financial companies. Also Goldman was not tempted by mergers, but for different reasons. Merging with another institution usually implies shared governance, and for years Goldman had strived to keep the power inside the family. Only in 1930 had the first outsider been allowed to lead the firm. Their growth strategy relied mostly on acquisitions and seeking novelties in the investment business. Similarly in Europe, not all G-SIBs followed the path of BNP Paribas. Deutsche Bank got trapped in its historical sentiments. Once a symbol of German prosperity and reliability, it was reluctant to engage in mergers, especially international ones,[59] to retain its 'national' character. Instead, it focused on bolt-on acquisitions. For instance, Deutsche acquired Morgan Grenfell in order to strengthen its investment banking business. It was exactly its trading and investment activities that contributed both to its growth and the following legal and financial problems.

1.2.3 Internationalization

Analogically to activities and growth, also in the context of the international development of G-SIBs, the common presumption is that they have been pursuing cross-border business from the outset, especially given their first activities related to trade and infrastructure investments.

58 BIS, *66th Annual Report*, 10 June 1996, p. 89. Rating agencies tended to upgrade the institution created as a result of a merger relative to the previous entities that merged. Also, typically share prices of given banks tend to rise when a merger is announced.

59 For instance in 2004 there were talks of a merger between Deutsche Bank and Citigroup but they collapsed. See *DW*, 'Citigroup Rejects Merger With Deutsche Bank', 1 October 2004, www.dw.com/en/citigroup-rejects-merger-with-deutsche-bank/a-1344568, accessed 30 November 2021.

Some G-SIBs indeed started their activity at the international level. For instance Deutsche Bank, despite its 'national culture', aimed at supporting cross-border trade from the very beginning of its functioning. It opened its London and Shanghai branches in 1873, almost 100 years before the first international branch of Goldman Sachs was established. One of the BNP Paribas predecessors, Comptoir National d'Escompte de Paris, was engaging in international financing in Asia already in the 1860s, but it constituted only a very small fraction of activities that the BNP forerunners conducted. Prevailingly, they concentrated on domestic operations, and the true internationalization took place only after BNP Paribas started its acquisition-based cross-border expansion at the beginning of the 2000s.[60] On the other side of the spectrum, closer to Deutsche, is Banco Santander – a bank that originally engaged in the very nationally oriented task of issuing banknotes, only to quickly expand with its lending business into South America. Actually, Santander's branches in Havana, São Paulo, and Buenos Aires were opened before its first foreign European office in London.

Reading about mostly European G-SIBs being active internationally in the 19th century, one could argue that in that sense a pattern can be drawn along regional lines of the USA vs. Europe, with European banks expanding abroad and US ones concentrating on domestic business. But it would be inaccurate. Many US G-SIBs, like Wells Fargo, Goldman Sachs, or State Street, indeed only started their cross-border expansion in the second half of the 20th century. Some, though, like JP Morgan and Citigroup, can serve as counterexamples. JP Morgan operated offices in London and Paris already in 1895, and Citi's predecessor, National City Bank, took over its affiliate's foreign branches in 1915.

The true internationalization boom for G-SIBs took place after World War II, from the 1960s on. Again, even though practically all of the G-SIBs engaged abroad, the directions and aims of their activities differed. For instance, State Street had a clear aim to become the world's largest custodian, and it tailored its expansion accordingly, taking into consideration where it would be most beneficial to store securities. Deutsche was undergoing its transition to investment banking, so it turned mostly to the USA and Wall Street with its expansion. Conversely, ING Group concentrated on increasing its European retail and insurance footprint, both by acquiring many foreign entities (DiBa, Bank Slaski, or the insurance firm Guardian) and by launching its branchless ING Direct concept.

1.3 G-SIBs as an un-uniform group – differences now

Undoubtedly, all of the G-SIBs constituted a vital part of the transformation wave in the banking world. Yet their development paths should not be merged into

60 Between 2005 and 2009 it acquired TEB in Turkey, BNL in Italy, Fortis in Belgium, and BGL in Luxembourg. See BNP Paribas, 'History: Two Centuries of Banking', https://group.bnpparibas/en/group/history-centuries-banking, accessed 30 November 2021.

one simple history of the rise of large systemic banks. They engaged in various activities, represented different growth strategies, and spread their operations in different directions. This individualism rooted in the history of each of the G-SIBs is even more visible today in their current activities (including international engagement), funding, risks, legal structure, and ownership.

1.3.1 An un-uniform group

The tendency to treat G-SIBs as a uniform group could stem from the fact that they indeed share common features. Empirical studies show a clear pattern distinguishing them from small and medium-sized banks. As a group they engage more in market-based operations and thus earn more income from non-interest sources, they hold less risk-dependent capital, have higher leverage, and use fewer deposits for funding purposes.[61] Additionally, G-SIBs were often perceived as committed to the 'big balance sheet model',[62] indicating their growth appetite. Yet, despite these similarities, each G-SIB constitutes a conglomerate on its own, a unique maze of subsidiaries, operations, and risks.

1.3.1.1 Activities

Modern bank activities as described in Section 1.1.2 encompass consumer and commercial banking, corporate and investment operations, and asset management. In detail, consumer services normally cover mortgage, card, student, and vehicle loans, whereas commercial banking means lending services for corporate clients and real estate operations. Conversely, corporate and investment departments engage in market-based activity and securities services along with underwriting and custody functions.

The general knowledge of the operations and activities of G-SIBs has been based on the 'universal bank' conviction that all of them provide the full range of such financial services, maybe with the exception of some more specialized investment banks. Indeed, most of the large and systemic banks engage in a broad spectrum of financial operations (see Table 1.1), but the actual share of different activities and international engagement differ from the common presumptions. For instance, JP Morgan Chase, a bank mostly seen (according to Table 1.2 and generally) as a universal or investment institution, actually earns the highest revenues from consumer and community banking, not corporate and investment, commercial or asset management activities.[63] In contrast, Deutsche Bank, originally concentrating mostly on retail activities, now relies prevailingly on its corporate and investment

61 See Laeven, Ratnovski, Tong, 'Bank Size', p. 9.

62 Saunders, Smith Walter, 'Enhanced regulation', p. 19.

63 JP Morgan Chase, 'Annual Report 2019', www.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/investor-relations/documents/annualreport-2019.pdf, accessed 30 November 2021.

segments for revenues.[64] Even though its Private Bank at first sight seems to be its strongest segment, Deutsche's revenue from corporate and investment operations combined is around €4 billion higher. A slow shift in the opposite direction can be seen at Goldman Sachs. The controversial investment giant, after its legal transformation into bank holding company, started developing commercial and retail business lines. Currently, it is accepting deposits through Goldman Sachs Bank USA and Goldman Sachs International Bank, as well as through its recent creation – the very consumer-oriented digital platform Marcus by Goldman Sachs. In August 2019 it went a step further 'in growing the firm's consumer franchise',[65] and it partnered with Apple to create Apple Card. These changes are visible as Goldman's net interest income, even though still relatively low compared to non-interest revenues, is steadily increasing and constituting a larger share of total net revenues every year.[66] The G-SIB often mentioned alongside Goldman, Morgan Stanley, has also been developing an individual business model, less focused on trading. It engages now more and more in wealth management, and in the investment area it concentrates on underwriting Big Tech companies such as Google or Groupon.

It could be argued that even though the proportions of earned revenues among G-SIBs vary depending on the business segment, they all remain universal institutions and still provide every imaginable financial service. Again, that would be misleading. The only two G-SIBs whose revenues are almost equally split between consumer banking and investment and asset management activities are Bank of America (BoA) and Société Générale (SocGen).[67] Conversely, State Street and Bank of New York Mellon specialize in custody, and both entirely gave up all other financial services, including retail. These G-SIBs operate only two lines of business – investment services and investment management – and constitute the biggest custodian banks in the world. BNY Mellon as of the end of 2019 had $37 trillion worth of assets under custody and State Street 'only' around $2.5 trillion less.[68]

64 Deutsche Bank, 'Annual Report 2019', www.db.com/ir/en/download/Deutsche_Bank_Annual_Report_2019.pdf, accessed 30 November 2021. See also Fichtner, Goos, Hesse, 'The Deutsche Bank Downfall'.

65 Goldman Sachs, 'Goldman Sachs Partners with Apple on a Game-Changing Credit Card', www.goldmansachs.com/our-firm/history/moments/2019-apple-card.html, accessed 30 November 2021.

66 Goldman Sachs, 'Annual Report 2019', www.goldmansachs.com/investor-relations/financials/current/annual-reports/2019-annual-report/annual-report-2019.pdf, accessed 30 November 2021.

67 Consumer banking brings revenues of around $39 billion and each of the two wealth management and commercial with investment banking segments earns around $20 billion. See Bank of America, 'Annual Report 2019', https://d1io3yog0oux5.cloudfront.net/_aabe6839bbfcc226b3d308f8be90ea0b/bankofamerica/db/867/7068/annual_report/2019_ar.pdf, accessed 30 November 2021. As for SocGen, each of the three business segments brings around €8 billion. See Société Générale, 'Annual Report 2019', www.societegenerale.com/en/societe-generale-group/strategy/integrated-report, accessed 30 November 2021.

68 See BNY Mellon, 'Annual Report 2019', www.bnymellon.com/content/dam/bnymellon/documents/pdf/investor-relations/annual-report-2019.pdf.coredownload.pdf, accessed 30 November 2021; and State Street, 'Annual Report 2019', https://s26.q4cdn.com/446391466/files/doc_financials/2019/ar/2019-Annual-Report.pdf, accessed 30 November 2021.

In the context of G-SIBs' activities, also the aspect of the internationalization of their operations remains misunderstood. It is commonly assumed that all of them conduct a variety of operations abroad, even more than domestically. In fact, they vary in that aspect as well. There are several banks that could be classified as domestic – for instance Crédit Agricole conducts 81% of its business in France and ING operates with 86% of its total assets in the EU.[69] In the USA, Wells Fargo's and Bank of America's domestic presence is calculated at 97% and 87%, respectively.[70] In turn, Deutsche conducts 42% of its business outside the EU[71] and Citigroup 43% outside of the USA and the Americas.[72]

G-SIBs are even more complex with regards to internationalization by business segment. Deutsche Bank's private and commercial business in Germany brings almost four times more revenues than its international operations in this area.[73] One could argue that this is obvious, because Deutsche's origins are retail and very nationally oriented, and the shift towards investment banking had a more international direction. This argument would not stand, however, in the case of JP Morgan Chase. At JP international activities prevail only in the corporate and investment bank segments, and even in that regard the difference between international and domestic revenues is rather minimal.[74] In contrast, asset and wealth management revenues stem mostly from North America. In both areas the biggest share of international revenue is earned in Europe, the Middle East, and Africa.[75]

This last fact hints at another common misconception segregating G-SIBs along regional lines. Looking at JP Morgan Chase's report and observing the role of foreign G-SIBs in these economies, one could assume that American systemic banks expand internationally mainly in Europe (and the Middle East and Africa, as these are presented together) and the European institutions in the opposite direction – in North America. This outline does not apply to all G-SIBs though. They also differ in terms of the international direction of their development. For instance, Citigroup's foreign business is concentrated in Asia, not in Europe.[76] Banco Santander, a European bank, earns only 16% of its profits from the North American market, whereas 37% of this group's profit stems from South America, especially Brazil, Chile, and Argentina.[77]

69 Jakob De Haan, Sander Oosterloo, Dirk Schoenmaker, *Financial Markets and Institutions: A European Perspective*, Cambridge University Press, 2015, p. 40.

70 Dirk Schoenmaker, *The Rise of International Banking*, Oxford Scholarship Online, 2013, p. 18.

71 De Haan, Oosterloo, Schoenmaker, *Financial Markets*, p. 40.

72 Schoenmaker, *The Rise*, p. 18.

73 Deutsche Bank, 'Annual Report 2019'.

74 Around $1 billion of difference between international revenue and North America revenue. See JP Morgan Chase, 'Annual Report 2019'.

75 Ibid.

76 Citigroup, 'Annual Report 2019', www.citigroup.com/citi/investor/quarterly/2020/ar19_en.pdf, accessed 30 November 2021.

77 Banco Santander, 'Annual Report 2019', www.santander.com/content/dam/santander-com/en/documentos/informe-anual/2019/ia-2019-annual-report-en.pdf, accessed 30 November 2021.

Even though in general terms European G-SIBs are much more active abroad than the American ones,[78] each of these banks builds its international presence following a different pattern and one should not assume a prevalence of foreign activities.

1.3.1.2 Funding

The same is valid for the funding structure of G-SIBs. Each of these banks constructs unique financing schemes, visible on its liabilities side of the balance sheet. Even though the accounting standards introduce some uniformity with regards to terminology, one can notice significant divergence also in that field. Some G-SIBs single out deposits as a separate category, and others group them up with debt securities in issue under the term 'financial liabilities at amortized cost'. There is also no consistency regarding the distinction of whether a given liability is secured or unsecured – many simply omit that information. Nevertheless, every G-SIB compiles its funding model from different proportions of deposits, equity, and long-term and short-term borrowings, both secured and unsecured. To some extent it reflects banks' activities and operational specializations, but presumptions in that matter can be misleading.

A very common generalization concerning the funding structures of G-SIBs has it that they are mostly reliant on short-term funding, especially repurchase agreements and interbank loans. However, the Office of Financial Research (OFR) in its calculations on short-term wholesale funding (as percentage of total liabilities) proves otherwise. For the USA, the top three firms actually using such unstable funds are American subsidiaries of Barclays, Credit Suisse, and Deutsche Bank. The first US G-SIBs in the ranking – Morgan Stanley and Goldman Sachs – are only fourth and fifth. The last of them is Wells Fargo, with this ratio almost six times lower than the number 1 on the list – Barclays USA.[79]

In fact, the biggest source of financing for almost all of them consists of deposits from consumers and other banks (see Table 1.1). Only in the case of mainly investment-oriented entities, such as Goldman Sachs, deposits do not make up the largest share of liabilities. Notably, similarities in the pattern of funding end with that feature. The actual percentage of deposit-based funding varies among G-SIBs. Annual reports show the highest share of such financing, nearing 70% in the case of custodian banks – State Street and BNY Mellon. Given their investment management and servicing specialization, one would expect a more wholesale-oriented funding pattern to be observed, but in these cases the redefined concept of deposits also encompassing funds from institutional investors should not be omitted. From that perspective, deposits appear to be in the center

78 See Schoenmaker, *The Rise*, pp. 18–31 and De Haan, Oosterloo, and Schoenmaker, *Financial Markets*, p. 50.

79 Data for the last quarter of 2019 from OFR, 'Bank Systemic Risk Monitor', under the section 'Short-term Wholesale Funding' (as percentage of total liabilities), www.financialresearch.gov/bank-systemic-risk-monitor/, accessed 30 November 2021.

of custodians' funding business. In contrast, the lowest deposit-based financing ratio is visible on the balance sheets of the investment-oriented banks mentioned above, like Goldman Sachs or Morgan Stanley, as well as Deutsche Bank, even though such financing constitutes its primary source of funding.

Equity, the second compound of so-called 'stable funding', does not rank among the three largest funding sources for some G-SIBs. Again, this would come as no surprise in the context of Goldman Sachs, but the relatively lower dependence on equity also applies in the case of ING Bank or Unicredit, very consumer- and commercial-oriented institutions. Clearly, also in this regard generalization is neither advisable nor correct.

1.3.1.3 Risks

Riskiness of G-SIBs has been the subject of extensive empirical studies. Some of the results are intuitive, such as general higher level of risk generated by large banks in comparison to smaller banks, or increase of risk proportional to decrease in deposit funding.[80] Others could seem counterintuitive – for instance the evidence that investment-oriented banks are more resilient during economic turmoil, due to the ability to utilize their capital in a more efficient way.[81] Conversely, when they do face liquidity shortages, it is highly likely that other banks active mostly on the capital markets are going to be taken down with them.[82] This disparity in riskiness in the context of an individual bank on a stand-alone basis and of an individual bank as a part of the financial system demonstrates that risks created by G-SIBs should be considered at two levels – individual and systemic.

As presented in Section 1.1.4, modern banks face plenty of individual risks – extended credit risk, liquidity and funding risk, operational risk, market risk, interest rate risk, and exchange risk. Also non-financial risks, such as those related to IT or environment, slowly rise to prominence.

This diversity is visible in the annual reports of G-SIBs, where they describe a whole complex mosaic of risks that they are exposed to (Table 1.1). Apart from the mere fact that the types of risks are repeated, it is impossible to establish a pattern for all G-SIBs as a group. Some of them, mostly the ones leaning towards universality, like JP Morgan Chase and Citigroup, focus on strategic risk – a compilation of potential issues with business plans and objectives. This demonstrates more intrinsic origins of such concerns. On the other hand, G-SIBs known for having a more investment-oriented profile, for instance Goldman Sachs and Deutsche Bank, stress market risk as most relevant for their operations. Those commonly classified as retail/consumer-oriented such as ING, Santander, or UniCredit list

80 Laeven, Ratnovski, Tong, 'Bank Size', p. 14.

81 Ibid. See also Aneta Hryckiewicz, Łukasz Kozłowski, 'Banking business models and the nature of financial crisis', *Journal of International Money and Finance,* 2017, 71, p. 22.

82 Ibid.

credit risk in first place. Additionally, within these groups of G-SIBs risk management priorities differ. Citigroup concentrates on compliance much more than JP Morgan Chase, probably due to its inconsistent pass rate in stress tests.[83] Deutsche Bank underlines political risks that Goldman Sachs does not even mention, and ING along with UniCredit are the only retail-oriented banks that discuss environmental and social risks at length. The unique character of its custodian business is reflected in State Street's report, as it presents strength of its counterparties (meaning clients posting securities or other assets for servicing) as the first source of potential financial problems.

Risk in the context of G-SIBs refers also to their riskiness as potential credit counterparties. This credibility is measured and reflected by credit ratings. When comparing ratings of G-SIBs as long-term debt issuers,[84] one can also observe divergence (Table 1.1). All of them pass the threshold of investment grade, but the detailed ratings of these institutions vary. Inconsistencies are visible among scores granted by different credit rating agencies (CRAs). Conversely, each CRA seems to be relatively consistent in its riskiness assessment of G-SIBs as a group. For instance, Moody's and S&P (first and second score) suggest that long-term debt issued by Citigroup, Deutsche Bank, Goldman Sachs, and Morgan Stanley bears the same amount of risk. Ratings set by Fitch contradict such an assessment and grade these institutions differently. Its ratings indicate that Deutsche Bank is the sole riskiest long-term debt issuer in that group. Similar contradictions are visible in the case of BNP Paribas and the two custodians, BNY Mellon and State Street. According to S&P they are all equally creditworthy, whereas Fitch and Moody's have less trust in BNP. Consequently, even though ratings (especially from one agency) can constitute an example of generalization and homogenic treatment of G-SIBs, it is visible that these institutions create and face a wide variety of risks and represent different levels of credit credibility.

The second dimension of risk requiring consideration in the case of G-SIBs is systemic risk. The systemic risk-centric body of literature has grown vastly over the last years, due to its enormous role in the Global Financial Crisis.[85] Currently a simple Google Scholar search shows over 3.8 million matches.[86] It is beyond the scope of this contribution to undertake attempts at defining systemic risk[87] as such, so for the purposes of this analysis it should be understood in the light of the following acknowledged definitions. The *Oxford Dictionary of Finance*

83 See Michael Corkery, 'Citigroup Fails Federal Reserve's Stress Test for 2nd Time in 3 Years', *Dealbook by The New York Times*, 26 March 2014.

84 This credit rating, if positive, indicates that once they issue a long-term financial instrument, they are considered reliable debtors and the outlook of them repaying it is positive.

85 For an overview of systemic risk literature see Olivier De Bandt, Philipp Hartmann, 'Systemic Risk in Banking after the Great Financial Crisis', in Allen N. Berger, Philip Molyneux, and John O. S. Wilson (eds), *Oxford Handbook of Banking*, Oxford University Press, 2019.

86 As of 30 November 2021.

87 More on the phenomenon of contagion and thus on systemic risk in Section 2.2.6.

and Banking describes it simply as a risk of failure of a whole system.[88] Ben Bernanke in his speech broadened it a bit, referring to 'risks a failure would pose to the financial system and broader economy'.[89] The International Monetary Fund, Financial Stability Board and Bank of International Settlements in their report for the G20 presented a definition that is probably most comprehensive in its briefness – they perceive systemic risk as 'a risk of disruption to financial services that is (i) caused by an impairment of all or part of the financial system; and (ii) has the potential to have serious negative consequences for the real economy'.[90] In brief, each G-SIB due to its network of dependencies generates systemic risk that would materialize in the event of liquidity problems or failure and would have an adverse impact on the financial system and real economy.

In contrast to the main premise of this contribution, Kevin Stiroh from the New York Federal Reserve claims that the systemic risk has its origins in the homogeneity of the G-SIBs.[91] In light of the historical and current analysis conducted above it is difficult to agree with this view. G-SIBs are indeed strongly interconnected with one another, but the character of these bonds varies, simultaneously revealing another dimension of their individualism.

There are four main ways in which interbank connections, and thus systemic exposures, are created.[92] Importantly, G-SIBs do not utilize all of them in the same proportions. The first and most commonly mentioned source of systemicness are funding exposures. Banks lend to each other and thus financial struggles of one of them can trigger funding problems of the others. However, as described above, their patterns of financing vary. Hence, the ones like Goldman Sachs relying more on the interbank market and less on consumer deposits can generate more systemic risk in respect to their bank lenders and borrowers. If they default on a loan, the market could lose trust in them, inflicting liquidity shortage, which in turn would prevent these banks from funding other institutions in the interbank market, thus spreading liquidity dry-out via funding channels. On the other hand, G-SIBs prevailingly funding themselves with individual deposits, like ING or Bank of America, are more reliant on consumer behavior than on demanding and sophisticated financial institutions. They are thus susceptible to bank runs – unpredictable occurrences often depending on behavioral phenomena such as herding.

88 Jonathan Law (ed), *A Dictionary of Finance and Banking*, Oxford University Press, 2015.

89 Ben Bernanke, 'Financial Reform to Address Systemic Risk', Speech at the Council on Foreign Relations, Washington, DC, 10 March 2009, www.federalreserve.gov/newsevents/speech/bernanke20090310a.htm, accessed 30 November 2021.

90 Staff of the International Monetary Fund and the Bank for International Settlements, and the Secretariat of the Financial Stability Board, 'Report to G20 finance ministers and governors, guidance to assess the systemic importance of financial institutions, markets and instruments: Initial considerations', October 2009.

91 Patrick Jenkins, 'US Regulator Fears "Homogeneity" of Large Banks', *Financial Times*, 1 November 2018.

92 A comprehensive analysis of the channels of contagion is beyond the scope of this contribution. For more on this, see De Bandt, Hartmann, 'Systemic Risk'.

Over the counter (OTC) derivatives constitute a second source of systemic risk. As they are not traded on exchanges (even though now cleared centrally), the element of trust should not be undervalued. As demonstrated above, derivatives are essentially bets: bets on a drop or rise in interest rates, prices of commodities, or credit defaults. G-SIBs use them for hedging or speculation, and these instruments have become an indispensable part of a G-SIB portfolio. One problematic characteristic of that source of systemic risk is the opaqueness of the derivatives market. Due to disparities between the notional and netted values of derivative exposure, it is difficult to assess the exact threat this market could pose in systemic terms. However, clearly some G-SIBs engage in derivatives trading much more than others, and consequently their share of systemic risk stems mostly from connections created via the derivatives market. In Europe, Deutsche Bank's exposure of a notional value of €43.5 trillion has frightened many in the financial world. Some have argued that this panic around Deutsche is nonsensical, as the netted amount is much lower.[93] Others have pointed out that it still indicates high interconnectedness and potential for operational risk, both of which could be detrimental for a struggling bank.[94] Even in the USA, not all G-SIBs engage in derivatives business of that magnitude. JP Morgan Chase and Goldman Sachs take the lead in that regard,[95] while for instance State Street's exposure is 24 times lower than that of JP. Disparities are visible even between banks normally considered to represent similar profiles – Goldman Sachs occupies second place in this derivative exposure rank of US banks, with $42 trillion, whereas Morgan Stanley is in 22nd position, not exceeding a trillion. It is worth noting that the G-SIBs leading on the derivatives market are mostly funded by deposits on a consolidated level and thus are less exposed to the interbank market systemic risks described above.

Thirdly, G-SIBs create connections with other financial institutions as part of their business strategy. For instance, the two largest custodians in the world – State Street and BNY Mellon – fund themselves mostly by deposits (even if from institutional clients), and do not speculate on derivatives as much as the other G-SIBs, but their systemic risk stems mainly from the custody function. There are two main channels of contagion when a custodian bank fails. Firstly, assets under custody can be entangled in lengthy insolvency proceedings and an inability to capitalize on them could cause liquidity problems for the depositors. Secondly, managed assets can sometimes get 'trapped' outside of the custodian balance sheet. Should it happen when insolvency proceedings start, they are mostly unrecoverable and constitute a loss on the part of investors.

93 Jamie Powell, 'Deutsche Bank Derivative Dumbness', *Financial Times*, 8 July 2019.

94 Mayra Rodriguez Valladares, 'Deutsche Bank's Death by a Thousand Cuts Is Not Over', *Forbes*, 8 July 2019.

95 US Bank Locations, 'Banks Ranked by Derivatives as of 31 December 2019', www.usbanklocations.com/bank-rank/derivatives.html, accessed 30 November 2021. It is relevant to stress that the data analyzed here refers to banking subsidiaries of the conglomerates, not the whole corporations (as is the case in other parts).

Another form of systemic risk origination related to services provided for other financial institutions is correspondent banking. As ECB defines it, 'correspondent banking arrangements are agreements or contractual relationships between banks to provide payment services for each other.'[96] However, this role can encompass more than only payment transfers. Correspondent banks normally enable smaller and less internationally active financial entities to conduct some of their operations abroad. Especially the largest and least specialized of G-SIBs, such as JP Morgan Chase, BNP Paribas, or Bank of America, engage in these operations. Even though, due to regulatory changes,[97] correspondent banking as a business seems to be declining,[98] it still constitutes a relevant source of systemic risk. Failure or financial turmoil at one of the correspondent banks could cut off its counterparties from access to international markets. That would impact not only the entity itself but also the international trade of a given country and thus the real economy. This instance provides for a geographical aspect of systemic risk.

In that geographical context, G-SIBs are also very varied within their group. In contrast to the common presumption of general global character of all of them, G-SIBs have developed in different geographical directions. Banco Santander is definitely prevailing on South and Central American markets, potentially putting these economies at risk should systemic failure materialize. In turn, Citigroup has spread its operations mostly towards Asian countries, hence those should be most concerned about any potential problems of this G-SIB.

1.3.1.4 Legal structure

In contrast to all of the above-described individualistic features of G-SIBs, which are exclusively institution-dependent, regulatory requirements can constitute one of the crucial external determinants in terms of the legal structure. Bearing that in mind, two main organizational models for financial conglomerates are distinguished.[99]

The first refers to G-SIBs functioning in a structure with a parent holding company at the top. Lower levels can encompass subsidiaries, branches, but also other intermediate holding companies. The parent company can be simultaneously

96 ECB, 'Ninth survey on correspondent banking in euro', February 2015.

97 Andrea Dunlop, 'Correspondent Banking: Are We Heading towards a Crisis?', *Paysafe*, www.paysafe.com/blog/correspondent-banking-are-we-heading-towards-a-crisis/, accessed 30 November 2021.

98 FSB, 'Correspondent banking data report', 16 November 2018.

99 Schillig distinguishes three main models: holding company, big bank, and global multi-bank. See Michael Schillig, *Resolution and Insolvency of Banks and Financial Institutions*, Oxford University Press, 2016, pp. 82–87; Herring and Santomero describe four models: complete integration; bank parent and non-bank subsidiaries; holding company parent and all activities as subsidiaries; and holding company parent with complete operational separateness, but these constitute mainly variations of the two basic models – big bank and holding company. See Richard Herring, Anthony Santomero, 'The corporate structure of financial conglomerates', *Journal of Financial Services Research*, 1990.

licensed as a bank. This scheme is known to be preferred in the USA, as it allows G-SIBs to combine different financial services under one roof. To become a parent in a network of banking subsidiaries a company must file for the Federal Reserve's approval and is then regulated and supervised as a bank holding company (BHC). Its subsidiaries can conduct banking activities but no services like insurance, securities underwriting, or dealing. Only since the Gramm–Leach–Bliley Act amended the Bank Holding Company Act in 1999 has a BHC an option to declare itself a financial holding company (FHC) in order to provide broader financial services. This solution simultaneously enables G-SIBs to comply with the Volcker Rule, as a separate entity undertaking financial activities forbidden for banks can be established under the same roof.

Even though all of the American G-SIBs are now financial holding companies, the rationale behind this decision and detailed legal structures vary. Goldman Sachs and Morgan Stanley have become bank holding companies only in order to have stable access to the Federal Reserve's discount window, which is exclusively available to deposit-taking entities. Understandably, to be able to carry on with their investment activities, they applied for FHC status and in the meantime received temporary permits from the Fed.[100] Other G-SIBs were already registered as BHCs when the requirement was adopted.

It is not only the reasons behind becoming an FHC that vary for the American institutions. Also the detailed internal structures are different. Looking at legal structure of JP Morgan Chase & Co.[101] and Citigroup Inc.[102] important discrepancies can be noticed. Even though both of them established intermediate holding companies (IHCs), the one of JP Morgan Chase seems to be encompassing its non-banking business, whereas Citi's Global Markets subsidiary is owned directly by the parent BHC. Citi seems to be using the IHC structure to gather all the geographically varied banking businesses under one roof, while JP Morgan Chase allocates it under the ownership of the main US bank – JP Morgan Chase Bank NA. Other G-SIBs also choose different patterns for their network of subsidiaries and branches. The selected set-up can be decisive in the case of a G-SIB's failure.

The second organizational model for the large systemic banks is sometimes called 'complete integration'.[103] Within that framework one central entity conducts operations in all fields of financial services. Of course, often specialized subsidiaries are established, but first of all there is no regulatory requirement to

100 John Carney, 'Goldman Sachs's CFO: We're a Financial Holding Company!', *Business Insider*, 20 August 2009, www.businessinsider.com/goldman-sachs-changes-its-status-to-financial-holding-company-2009-8?r=US&IR=T, accessed 30 November 2021.

101 JP Morgan Chase, '2019 Resolution plan public filing', www.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/investor-relations/documents/events/2019/resolution-plan-2019/Resolution%20Plan%20Public%20Filing%202019.pdf, accessed 1 December 2021, p. 17.

102 Citigroup, '2019 Resolution plan', www.citigroup.com/citi/fixedincome/data/corp_struct.pdf, accessed 1 December 2021.

103 Herring, Santomero, 'The Corporate Structure', p. 223.

separate particular lines of business, and secondly, the parent entity is not just a holding company coordinating lower organizational levels but is also involved in banking operations (operating holding company). Most of the EU G-SIBs represent this model. They are registered as public companies in their respective jurisdictions – for instance Deutsche Bank as an *Aktiengesellschaft* and ING Group as a *naamloze vennootschap*. They provide various financial services via subsidiaries and branches, but the parent company plays first fiddle in almost all lines of business. This does not mean, however, that they are similar as regards their legal structure in general. Deutsche Bank is famous for its heavily subsidiary-oriented model, with 459 subsidiaries[104] reported at the end of 2019. In contrast, ING in its annual report mentions only the 11 most important principal subsidiaries.[105] The Dutch bank is known for its pursuit of digital-based customer service and leaning towards a simple low-subsidiary and almost branchless structural set-up.

Some EU G-SIBs do not even share the similarities of the 'complete integration' model. The most peculiar example is Groupe Crédit Agricole. It consists of three main components – local banks, regional banks, and Crédit Agricole SA (stock corporation). Regional banks own the local banks, whereas the stock corporation owns stock in each of the regional banks. In turn, regional banks jointly control the stock corporation. Of course, the latter also serves as holding company over many subsidiaries, but there is no easily definable hierarchy between those three main parts of the group. They are interdependent.

1.3.1.5 Ownership

Ownership structure is one of the commonly omitted features of G-SIBs that actually also vastly contributes to their individualism. Depending on the strategies, goals and intentions of the majority owners, G-SIBs can either become weapons of mass destruction indulging in more and more risky business or actually sources of enhanced financial stability. In this regard, it is relevant to see who their top shareholders are and how the pattern of stakeholdings differs among G-SIBs.

The first observation from the institutional investors' ownership structure is the scattered character of the holdings. The largest shareholder rarely owns a stake higher than 10%. This is partially explained by the special regulatory requirements triggered by exceeding this threshold of ownership. Only Berkshire Hathaway has dared to cross this benchmark in its stake in Bank of America. Also, the range the top three holdings fluctuate within varies depending on the G-SIB, from the American G-SIBs, whose top investors hold from 8 to 5%, through Société Générale's, Deutsche's, and Unicredit's major shareholders at 4 to 3%, to the most scattered ownership structures like ING (top investor holding a bit more than a 1% stake) or Banco Santander (0.7%).[106]

104 Deutsche Bank, 'Annual Report 2019'.
105 ING Groep, 'Annual Report 2019'.
106 Based on CNN and Nasdaq as of end of 2019. See Table 1.1.

Apart from the exact percentage of holdings, the character of institutional investors really matters for a bank's governance and operations. In the case of American G-SIBs, several names prevail: the Vanguard Group, BlackRock, SSgA Funds Management, and Berkshire Hathaway. The relations between these financial management companies and the G-SIBs that they own a big share in varies. For instance the Vanguard Group can see a competitor in JP Morgan Chase, which it holds the biggest stake in. Vanguard, along with BlackRock, pioneered the market for passive investing in exchange-traded funds (ETFs), which could potentially decrease the big investment banks' role in currency trading.[107] Meanwhile, JP Morgan Chase decided to launch an ETF with the lowest fee, beating Vanguard's and BlackRock's offer.[108] It is easy to imagine that the relation between JP Morgan Chase's executives and the largest single owner can become tense should the competition escalate. Also tensions could potentially be observed in the case of Wall Street-based Capital Group and Deutsche Bank, or even more probably between the largest shareholder of BNP Paribas, controlled by the Belgian state, and the French G-SIB itself.

On the other side of the spectrum is Berkshire Hathaway and its trust in Wells Fargo. Warren Buffet has many times expressed his belief that Wells Fargo is one of the best long-term investments or even that it would outperform other US banks in the next decade.[109] When asked about the fake account scandal,[110] he admitted Wells Fargo made 'big mistakes' but did not stop praising the company's virtues.[111] Even though the relationship between Wells Fargo and one of its largest shareholders was much warmer than the one of JP Morgan Chase and Vanguard, Buffet did not refrain from exerting influence. He openly suggested that the new Wells Fargo CEO should be a Wall Street outsider and not from JP Morgan Chase or Goldman Sachs.[112] In the end, Charles Scharf, former CEO of BNY Mellon and Visa, was appointed as the new chief executive. Wells Fargo discovered relatively fast what happens when Buffet's guidance is not followed. Berkshire Hathaway unloaded most of its stock.[113]

107 Liz Kiesche, 'Vanguard Eyes Banks' Grip on Currency Market – Bloomberg', *Seeking Alpha*, 3 October 2019, https://seekingalpha.com/news/3503770-vanguard-eyes-banks-grip-on-currency-market-bloomberg, accessed 1 December 2021.

108 Eric Rosenbaum, 'JP Morgan Is About to Launch the Lowest-fee Way to Bet on the Entire US Stock Market', *CNBC*, 11 March 2019, www.cnbc.com/2019/03/11/jp-morgan-about-to-launch-lowest-fee-us-stock-market-etf-yet.html, accessed 2 December 2021.

109 Matthew Frankel, 'If Warren Buffett Loves Wells Fargo So Much, Why Is He Selling the Stock?', *Yahoo Finance*, 17 December 2018, https://finance.yahoo.com/news/warren-buffett-loves-wells-fargo-121100465.html, accessed 2 December 2021.

110 Matt Levine, 'Wells Fargo Opened a Couple Million Fake Accounts', *Bloomberg*, 9 September 2016.

111 Paul La Monica, 'Buffett Says Wells Fargo Made 'Big Mistakes' and Did 'Crazy Things', *CNN Business*, 4 May 2019, https://edition.cnn.com/2019/05/04/investing/warren-buffett-wells-fargo-berkshire-hathaway-meeting/index.html, accessed 2 December 2021.

112 Spencer Kimball, 'Warren Buffett Says Next Wells Fargo CEO 'Shouldn't Come from JP Morgan or Goldman Sachs', *CNBC*, 7 April 2019, www.cnbc.com/2019/04/07/warren-buffet-calls-for-wells-fargo-to-look-beyond-wall-street-for-next-ceo.html, accessed 2 December 2021.

113 Hannah Levitt, Katherine Chiglinsky, 'Buffett Inches Toward Wells Fargo Exit as Scharf Sets Course', *Bloomberg*, 16 October 2020.

Such influences are also visible in the EU, for instance in the case of Deutsche Bank being pressurized by its third biggest stakeholder – Stephen Feinberg (Cerberus) – to replace Deutsche's chairman, Paul Achleitner.[114] Reportedly, Cerberus could not hide its disappointment about the failed merger between Deutsche and Commerzbank, a second German bank he holds one of the highest stakes in.

1.3.2 Attempts at business model classification

Regardless of the complex and individualistic character of these institutions outlined above, there have been many academic attempts to classify them or to identify their business model. Four methodologies are especially worth mentioning, as they include the exact assignment of each G-SIB to one of the business models.

Roengpitya et al. in their analysis published in a BIS Working Paper[115] identify four banking models: retail funded, wholesale funded, trading oriented, and universal. This terminology could already cause confusion, as it indicates that some banks are classified on the basis of their funding (retail, wholesale) and some according to their activities (trading, universal). However, the description of the models and the utilized methodology prove that these categories are relatively comprehensive. A retail-funded bank could be seen as a traditional one, with mostly loan assets funded by deposits. The wholesale-funded model refers to entities also mainly granting loans but financing themselves with wholesale debt. The characteristics of trading-oriented banks are a sizeable trading book and funding in interbank markets, whereas a universal bank has a loan book bigger than the trading-oriented bank, but also engages in trading activities and on the liabilities side has both deposits and wholesale funding. The authors of this contribution analyze banks from all over the world, including all the G-SIBs in the studied regions.

In contrast, Hryckiewicz and Kozłowski[116] distinguish the following models: trader, investment, specialized traditional, and diversified traditional. The latter category refers to a retail bank that is leaning towards trading and wholesale funding in addition to 'traditional' activities, while the difference between trader and investment banks lies in funding – according to this methodology trader banks fund themselves with deposits and investment ones with wholesale funding. The authors do not identify any universal model of banking. Also, they reveal individual assignments to the given models by way of example, thus not for all G-SIBs.

The third methodology, the Banking Business Models Monitor 2015[117] by Ayadi et al., categorizes only European banks, but two years later a US-focused contribution was also published – Bank and Credit Union Business Models in

114 Olaf Storbeck, Laura Noonan, 'Cerberus Pushes for Paul Achleitner to Leave Deutsche Bank', *Financial Times*, 1 November 2019.

115 Rungporn Roengpitya, Nikola Tarashev, Kostas Tsatsaronis, Alan Villegas, 'Bank Business Models: Popularity and Performance', *BIS Working Paper*, December 2017, 682.

116 Hryckiewicz, Kozłowski, 'Banking business models'.

117 Ayadi et al., *Banking Business Models.*

the United States.[118] For Europe, the authors distinguish three main banking models – retail-oriented, wholesale, and investment; however, the retail-oriented model encompasses three subcategories – one focused and two diversified ones. Focused retail banks represent the traditional deposit-taking and lending model, whereas diversified retail institutions engage in trading, and the second variation additionally relies on wholesale funding. Among American banks no holding companies are taken into account in the methodology, so models of G-SIBs refer either to banks constituting part of a G-SIB holding company or stand-alone ones. Yet, the identified models do not differ significantly from the ones utilized in the European monitor, and also the resulting categorization does not diverge from the results of methodologies considering holding companies. In this study, banks are classified either as wholesale-, retail- (focused or diversified), or investment-oriented.

With regards to G-SIBs, the results of these different studies turn out to be at least divergent, if not contradictory (see Table 1.2). JP Morgan is commonly considered to constitute a typical example of a universal bank. This is in compliance with the BIS Working Papers analysis by Roengpitya et al.[119] However, the study by Hryckiewicz and Kozłowski[120] not only refuses to distinguish the universal bank model but categorizes banks engaging in the most diversified activities, like JP Morgan, Citibank, and Bank of America, under its investment model[121] along with Goldman Sachs, Morgan Stanley, ING, and Santander. Furthermore, in this analysis the Bank of New York Mellon, commonly perceived as a custodian bank,[122] is considered to represent the traditional diversified model.[123] Roengpitya et al. in contrast classify BNY Mellon as trading-oriented, the same as Goldman Sachs and Morgan Stanley, whereas ING and Santander are retail-funded institutions. An analysis of the EU banks conducted by Ayadi et al. contradicts that statement and considers both ING and Santander to be financed mostly by short-term debt liabilities. Their model according to that study would vary between diversified retail and investment in the case of ING. Discussed methodologies reveal further surprises. For instance, none of the G-SIBs are classified as wholesale-funded in the analysis by Roengpitya et al. The reason could be the typical engagement in trading of wholesale-funded banks, and in this given model the wholesale-funded banks' asset side is supposed to be based on loans. Additionally, no European G-SIB

118 Ayadi et al., 'Bank and Credit Union Business Models in the United States', Alphonse and Dorimène Desjardins International and Institute for Cooperative International Research Centre on Cooperative Finance, 2017.

119 Roengpitya et al., 'Bank Business Models'.

120 Hryckiewicz, Kozlowski, 'Banking business models'.

121 Ibid, p. 5.

122 See Trefis Team, 'Which Custody Banking Giant Is in Better Shape: BNY Mellon or State Street?', *Forbes*, 31 October 2019.

123 The traditional diversified model demonstrates a high proportion of loans to households and companies, and other earning assets with deposits as the primary source of funding.

is assigned to the wholesale model by Ayadi et al., probably due to very narrow criteria of engaging in interbank lending and trading financed by common equity. Conversely, the American banks that were not classified as wholesale by Roengpitya et al. are considered so by Ayadi et al. Six out of eight US G-SIBs are represented by the wholesale, or at least partially wholesale, model, the only exceptions being Wells Fargo and Bank of America.

It could be contested that these methodologies are differently construed, and it is not out of the ordinary that they do not use the same term in the same meaning, as in each methodology the final model designation constitutes a result of different variables. This is not a convincing argument, given that they utilize the same balance sheet structure data and in some cases the results are really contradictory (ING), not just with regards to terminology. Also the defense that G-SIBs could dynamically alter their models cannot stand, given that all of these contributions are based on data from 2015–2016, so a relatively narrow period of time. Some other flaws of these methodologies could be mentioned in the context of accurate G-SIB classification. For instance none of the analyses takes into account the substitutability of a given institution or its place in the financial system, such as connections with other entities, even though these two features constitute an essential part of a bank's business model. Also, Hryckiewicz and Kozłowski classify short-term funding as 'traditional', which could be perceived as a bit of a stretch. Finally, one can notice an increase in the number of proposed models in Ayadi's work. Ayadi, with a somewhat different group of co-authors, published a similar methodology in 2011.[124] This study distinguished only three banking business models, whereas the newest analysis assigns banks to five categories.

Two main conclusions can be formulated on the basis of this overview of G-SIB modelling attempts. Firstly, it is very challenging to construe an accurate methodology and identify business models of these entities, mostly because of their conglomerate-like structure and complexity. Also, the model indicates only prevailing activities, ignoring the tendency of G-SIBs to branch out, visible for instance on the example of the ever-growing retail subsidiary Marcus by Goldman Sachs. Secondly, in the case of G-SIBs, business model-based categorization reflects the persistent tendency to treat them as a more or less uniform group. For each methodology one model is evidently prevailing – universal for Roengpitya et al., investment for Hryckiewicz and Kozłowski, investment in the European analysis by Ayadi et al., and wholesale in the US one. However, the group of G-SIBs is not uniform; these entities vary significantly among each other, and the divergence is evident within each model. Wells Fargo and Deutsche Bank are both considered universal, even though the strategies and activities of these banks differ. Further, ING is grouped up as an investment bank together with Goldman Sachs, constituting one of the most contrasting pairs in this analysis. Also, in the

124 Rym Ayadi, Emrah Arbak, Willem Pieter De Groen, 'Business Models in European Banking: A Pre-And Post-Crisis Screening', *CEPS*, 19 October 2011.

group of 'purely' wholesale banks, one intuitively notices that Citi does not fit in with State Street and BNY Mellon.

1.4 Challenges and opportunities facing G-SIBs – differences in the future?

G-SIBs differ from each other, and this will not change. Thus, it is essential to take these differences into account when considering the future of G-SIBs – how will they play out in the context of new challenges and opportunities? G-SIB diversity can be seen in the three most significant aspects that will shape the future of megabanks – namely their relation with Big Tech, turning green/sustainable, and the COVID-19 pandemic.

1.4.1 Big Tech

Big Tech companies rock the world. They are present in countless aspects of our lives, including in finance. The Financial Stability Board defines them as 'large companies with established technology platforms and extensive established customer networks'.[125] As lead examples of Big Tech players one can name Amazon, Google/Alphabet, Apple, Facebook, Microsoft, Tencent, and Alibaba.

In recent years they have entered the market of financial services, and their relation with the incumbent hegemons of the finance world – G-SIBs – triggered extensive public discussion. Will they replace the megabanks?[126] Will they join forces? What influence is their presence going to have on the functioning of G-SIBs? The relation between Big Tech and G-SIBs cannot be reduced to the mere competition of large, international companies. It is much more complex, and most importantly it depends on the specific characteristics of a given G-SIB. In order to outline this relation and to assess how important differences between G-SIBs are in this context, one should look at four main aspects of the storming of the financial sector by Big Tech: their incentives, products, magnitude, and technological progress.

First, it is crucial to look at Big Tech's motivation behind their entry into the financial system. The main rationale for providing financial services to their customers is twofold: either they strive to deliver a holistic user experience – to encourage users to remain in their digital world without having to turn to third

125 FSB, 'BigTech in finance. Market developments and potential financial stability implications', 9 December 2019, pp. 1, 3.

126 Garry Hamilton, 'The Dismantling of Bank Brands by Big Tech', *FinTech Magazine*, 30 May 2021, https://fintechmagazine.com/banking/dismantling-bank-brands-big-tech, accessed 27 August 2021; Dan Murphy, 'Big Tech's Invasion of Banking', *Milken Institute Review*, 26 April 2019, www.milkenreview.org/articles/big-techs-invasion-of-banking, accessed 30 August 2021.

parties[127] – or they try to diversify their business and choose finance as one of the options.[128] In the case of firms focused on user experience, they do not appear to plan to turn into financial institutions – they just concentrate on their customers' needs and fulfil them. The diversification strategy is more in the collision path with the G-SIBs, even though it is pursued by only a few Big Tech firms. Namely, Alibaba established an affiliate company, Ant Group, that is a fully fledged financial group encompassing a banking entity – MYbank. Tencent also set up its own bank – WeBank. However, this bold entry into the financial world is visible only in Asia – and that is why G-SIBs with a presence on that continent should be most concerned. For instance, such expansion could be especially worrying for Citigroup, HSBC, or Standard Chartered.[129]

Different incentives are also reflected in the product segments that Big Tech firms offer. Except for several of the Asian companies, their focus is prevailingly on payments, a service ancillary to the core business of these digital giants.[130] Of the Western Big Tech companies, only Amazon and Apple have gone one step further, establishing a retail and SME lending platform and providing credit card services respectively.[131] Generally, Big Tech's financial presence is mostly of a retail character, so it is the more retail-oriented G-SIBs that should stay alert. Big banks like BNY Mellon or State Street that primarily fulfil custodial functions, or more investment-focused entities like Morgan Stanley or Credit Agricole, do not have to fear direct competition from Big Tech as much.[132] Should then the likes of Wells Fargo or Bank of America perceive Big Tech firms as their direct competitors? Not necessarily. It is often stressed that Big Tech constitutes more of a competitive threat to smaller banks, as they rarely diversify their business and focus almost exclusively on retail services. Also they do not have the financial means for investment in technological progress.[133]

Finally, size and technological advancement are often mentioned as a sign of superiority of Big Tech over G-SIBs. Big Tech entities account for four out of the five largest companies in the world according to market capitalization. Apple (the largest of all) is over four times the size of the largest of the G-SIBs, JP Morgan

127 Oliver Wyman, 'International Banking Federation, Report: Big Banks, Bigger Techs? How policy-makers could respond to a probable discontinuity', 2020, p. 15.

128 Alessandra Tanda, Cristiana-Maria Schena, *FinTech, BigTech and Banks. Digitalisation and Its Impact on Banking Business Models*, Palgrave Macmillan 2019, pp. 44–46.

129 And of course also for the Chinese G-SIBs. However, they have been excluded from the scope of this work.

130 Wyman, 'International', p. 19.

131 It looks a bit different in Asia, as mentioned above, where both Tencent and Alibaba established bank subsidiaries and are now direct competitors to incumbent big banks.

132 Some of the Asian Big Tech companies also offer wealth and asset management services. See Wyman, 'International', p. 19.

133 Tanda, Schena, *FinTech, BigTech*, p. 106.

Chase.[134] For obvious reasons Big Tech is also much more ahead of big banks when it comes to technology. These features, combined with enormous customer bases, allow them to use the effects of scale and network. The approach to Big Tech's magnitude and technological advantage is different at individual G-SIBs. Some have significantly increased their technology spending, while some show a more reluctant attitude. For instance, in 2020 BNY Mellon and SocGen spent 29% and 26% respectively of total operating costs on tech, whereas for Goldman Sachs and JP Morgan it was 'only' 16% and 15% respectively.[135] In comparison, Amazon's expenditure on tech amounts to 12% of total operating costs, but it still puts this giant in the first place when it comes to gross expenditure.[136] G-SIBs are trying to catch up with Big Tech, or at least do not want to lag too far behind, but the pace necessary to achieve this is different.[137]

Even though Big Tech's impact on G-SIBs varies depending on their geographical presence, prevailing type of services, or engagement in technological development, there are several aspects of their relation with digital firms that apply to all of the big banks. First, however surprising it may be after the Global Financial Crisis, customers trust financial institutions much more than Big Tech companies. A recent survey by the Bank of International Settlements revealed that US households trust financial entities with their data more than they trust governments, fintech, and Big Tech.[138] Big Tech was in fact placed last. This feeling was deepened by the pandemic.[139] Second, G-SIBs have something that the digital giants do not and probably will not have anytime soon. Namely, they operate a strictly licensed and regulated business. In order to start real competition, Big Tech firms would have to obtain all necessary licenses, bear regulatory costs, and subject themselves to financial supervision. For now, as their market power is under scrutiny,[140] it does not seem that regulators would be eager to allow it. Even if they do, there are further legal hurdles that would have to be overcome.[141] Lastly, what is common for all the G-SIBs when it comes to their relations with Big Tech are the risks that arise from their cooperation. It often goes unmentioned

134 Jenna Ross, 'The Biggest Companies in the World in 2021', *Visual Capitalist*, 10 June 2021.

135 Sarah Butcher, 'Here's How Much Banks Spend on Tech vs. Amazon and Google', *Efinancialcareers*, 17 June 2021, www.efinancialcareers.com/news/finance/banks-tech-spending-vs-google-and-amazon, accessed 29 September 2021.

136 Ibid.

137 Imani Moise, Joshua Franklin, 'US Banks Ramp Up Spending on Pay and Technology', *Financial Times*, 17 July 2021.

138 Olivier Armantier, et al., 'Whom Do Consumers Trust with Their Data? US Survey Evidence', *BIS Bulletin*, No. 42, 27 May 2021.

139 Ibid.

140 Both in the EU and in the US, steps were taken to investigate and potentially lower Big Tech's market influence. See for instance Kara Swisher's interview with Margrethe Vestager, 'Meet Big Tech's Tormenter in Chief', *New York Times*, 10 June 2021.

141 For instance the US Bank Holding Company Act prohibiting commercial firms from owning a bank. See Murphy, 'Big Tech's'.

that apart from the competitive aspect, digital giants provide G-SIBs with many technological solutions, mostly in the field of data analytics and repository.[142] Recently, several regulators drew the world's attention to the fact that the majority of financial entities rely on one single cloud administered by one cloud provider.[143] Such dependency could increase the level of 'cloud risk' – the risk of extensive disturbance in financial services caused by technical problems related to the cloud or its provider.

1.4.2 Green revolution

'Green' and 'sustainable' have recently become key adjectives for all industries, not only the ones directly engaged in climate-related businesses involving fossil fuels or greenhouse gas emissions. In this vein 'green finance' is understood as 'the financing of investments that provide environmental benefits in the broader context of environmentally sustainable development'.[144] It refers to a wide range of assets and financial institutions, including banks.[145] A more general definition encompasses 'any structured financial activity that has been created to ensure a better environmental outcome'.[146]

The importance of 'greening' the financial world is not just a fleeting trend and should not be underestimated. The president of the Dutch central bank compared our current situation to the one of Central and Eastern European countries after the fall of communism – he claims that today we all are transition economies.[147] The change has to be profound and overarching, and encompasses the business of financial institutions. In their context, it has been scientifically shown that climate change may (and most probably will) have serious implications on financial stability. First, the probability of bank default increases because of more frequent

142 Wyman, 'International', p. 19.

143 Iain Withers, Huw Jones, 'For Bank Regulators, Tech Giants Are Now Too Big to Fail', *Reuters*, 20 August 2021. Also most banks are moving their business to the public clouds – the ones that are not set up for this particular company but rather used via authentication credentials by many different entities. See McKinsey Webinar, 'Accelerating Hybrid-Cloud Adoption in Banking and Securities', 6 January 2021, www.mckinsey.com/business-functions/mckinsey-digital/our-insights/accelerating-hybrid-cloud-adoption-in-banking-and-securities, accessed 29 September 2021.

144 UN Environmental Programme, 'G20 leaders welcome "green finance" in Summit communiqué', 5 September 2016, www.unep.org/news-and-stories/press-release/g20-leaders-welcome-green-finance-summit-communique, accessed 29 September 2021.

145 Ibid.

146 Sean Fleming, 'What is Green Finance and Why Is It Important?', *World Economic Forum*, 9 November 2020.

147 Klaas Knot, 'Getting the Green Deal done – how to mobilize sustainable finance', keynote address by Mr Klaas Knot, President of the Netherlands Bank (DNB), at an open event organized by Bruegel, 11 February 2021, https://www.bis.org/review/r210217d.htm, accessed 8 October 2021, p. 1.

natural disasters.[148] Second, broader banking crises become more frequent due to climate change.[149] These tendencies highlight how significant and complex climate risk has become. It now encompasses not only physical risk to tangible assets, but also transitional and liability risks.[150] Therefore, it is also the concern of banks, including G-SIBs, to work on sustainability.

Banks can use their position in the financial system to do that. Their role as capital providers (both directly as lenders and investors, and indirectly as underwriters) is essential in that regard.[151] Taking into consideration a firm's environmental approach in the financing proceedings could have a significant impact on the climate. Banks are well-informed when it comes to their clients and so should be able to demand appropriate data and to accurately assess the risks, including the climate ones. Sustainability should also become a significant issue in banks' day-to-day internal operations, for example regarding waste, business travel, and the climate-neutrality of office buildings.[152]

Naturally, all this is easier said than done. Jamie Dimon of JP Morgan Chase, in his 2020 annual letter to shareholders, showed a rather cautious approach, stating that 'the solution is not as simple as walking away from fossil fuels'.[153] EU banks admitted straightforwardly that they were not ready for the new climate tests.[154] This environmentally reluctant attitude was also vividly noticeable in the latest findings of the Rainforest Action Network report *Banking on Climate Chaos*.[155] In the years 2016–2020, so starting a year after the Paris Agreement was signed, the biggest banks in the world financed fossil fuel businesses to the amount of 3.8 trillion dollars. In general, the financing of fossil fuels has been steadily increasing since 2016, with a small slump caused by the COVID-19 pandemic.

148 Felix Noth, Ulrich Schüwer, 'Natural Disasters and Bank Stability: Evidence from the U.S. Financial System', *SAFE Working Paper* No. 167, April 2018.

149 Francesco Lamperti et al., 'The Public Costs of Climate-Induced Financial Instability', *LEM Papers Series* 2019/42.

150 ECB, 'Guide on climate-related and environmental risks. Supervisory expectations relating to risk management and disclosure', May 2020, p. 10.

151 They can also act as valuer of risks at different companies. See Megan Bowman, 'The role of the banking industry in facilitating climate change mitigation and the transition to a low-carbon global economy', *Environmental and Planning Law Journal*, 2010, 27.

152 For more about the internal and external dimensions of the banking sector in the climate context see Edgar Löw et al., 'Corporate Social Responsibility (CSR) and Environmental Social Governance (ESG) – Disclosure of European Banks', *EBI Working Papers 2021*, no. 83, 3 February 2021, p. 35.

153 Jamie Dimon, 'Letter to Shareholders', 7 April 2021, www.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/investor-relations/documents/ceo-letter-to-shareholders-2020.pdf, accessed 29 September 2021, p. 19.

154 Frances Schwartzkopff, Nicholas Comfort, 'Banks Warn They're Not Ready for ECB's Historic Climate Test', *Bloomberg*, 6 September 2021.

155 Rainforest Action Network, 'Banking on climate chaos. Fossil fuel finance report 2021', www.ran.org/wp-content/uploads/2021/03/Banking-on-Climate-Chaos-2021.pdf, accessed 29 September 2021.

These results spurred public outrage and raised questions about megabanks' real attitude towards the environment and their future plans to boost sustainability, as well as the impact of climate issues on their operations. Again, each G-SIB approaches the green revolution differently. This is especially visible in their fossil fuel financing operations, green issuances, other green initiatives, and reporting of climate-related data.

Starting with the role of megabanks as capital providers, the 'Banking on Climate Chaos' report undeniably shows a very worrying increase in fossil fuel funding. However, not all G-SIBs contributed to that trend equally. JP Morgan Chase is dubbed the world's worst banker of fossil fuels with almost USD 317 billion poured into it between 2016 and 2020 by means of lending and underwriting.[156] Citi, Wells Fargo, and Bank of America followed behind.[157] Goldman Sachs was more prudent, and its financing amount was less than a third of JP Morgan's. State Street and BNY Mellon did not even make the list, revealing a relatively climate-friendly profile. Of course, their business model is mostly custody-oriented, so it seems a little easier for them to navigate their actions sustainably when lending and underwriting is not their primary occupation. European G-SIBs are generally more sustainable in this regard than their American peers. However, the group is also internally differentiated. BNP Paribas granted as much as USD 121 billion in fossil fuel financing, whereas UniCredit's number was four times lower.

Sustainability in banking is not only about providing (or not) capital to the fossil fuel industry. Recently, the green bond market has been booming. Between 2018 and 2019 it grew by 51%.[158] A steady increase is also visible in the green bond issues of banks.[159] Surprisingly, several G-SIBs that are the most engaged in fossil fuel financing, like JP Morgan, Citigroup, or BNP Paribas, lead the way in the arranging of green bond sales.[160] On the other hand, among the leading ones, there are also banks relatively prudent in terms of fossil fuel financing, like Credit Agricole and HSBC.[161]

Some G-SIBs also take further steps to boost their sustainable profile. One example is an initiative called the Poseidon Principles. They 'provide a framework for integrating climate considerations into lending decisions to promote

156 Ibid, pp. 12–13.

157 Ibid, pp. 14–15.

158 Irena Pyka, Aleksandra Nocoń, 'Banks' capital requirements in terms of implementation of the concept of sustainable finance', *Sustainability,* 2021, 13 (6), p. 11.

159 Miroslav Petkov, 'A Look at Banks' Green Bond Issuance Through the Lens of Our Green Evaluation Tool', S&P Global, 8 March 2018, www.spglobal.com/en/research-insights/articles/a-look-at-banks-green-bond-issuance-through-the-lens-of-our-green-evaluation-tool, accessed 29 September 2021.

160 Tim Quinson, 'Banks Earn Big on Green Bonds But Really Clean Up With Fossil Fuel', *Bloomberg*, 5 May 2021.

161 Ibid.

international shipping's decarbonization'.[162] Many G-SIBs (including Citigroup, SocGen, Credit Agricole, BNP Paribas, and ING) that play an important role in the financing of the shipping industry agree on criteria to adjust their lending framework and so incentivize shipping companies to cut emissions. There are also actions taken in the context of internal governance – two European G-SIBs, ING and Credit Agricole, link executive pay to climate commitments and in this way motivate management to boost sustainability.[163]

Apart from these tangible climate-oriented actions, there is one more technical aspect of G-SIB operation that confirms the diversity of these banks' attitudes towards sustainability – the reporting of operations impacting the climate.[164] Bloomberg analyzed European G-SIBs' annual reports and disclosures required by the central banks with regards to the climate impact.[165] The main takeaway is that the provided data is generally incomplete. However, some G-SIBs, for instance Credit Suisse and Barclays, made a bigger effort than others to ensure transparency and diligent disclosure. Deutsche Bank, Santander, and UniCredit provided only partial analysis, focusing on obvious climate-relevant sectors. Finally, reporting efforts of the French giants BNP and SocGen were not really helpful, given that they just disclosed loans to all the sectors, without a climate-related focus.

Even though G-SIBs approach the green revolution differently and the impact on their operations therefore varies, there is one aspect common for all of these megabanks – they need to do better and they know it. In the ranking by Share Action assessing response to climate change none of the 20 biggest European banks received a score of over 65%. Vast majority fell into 'building capacity' and 'business as usual' categories.[166] Trying to boost their climate reputations, G-SIBs made almost identical promises regarding their future sustainability profiles. The ones that poured the most money into fossil fuels in recent years, for instance JP Morgan Chase, Wells Fargo, and Citigroup, announced a net-zero emissions target when it comes to their financing operations. They plan to achieve it by 2050.[167] Twenty out of the 25 largest European banks made a similar pledge.[168] It is important that supervisors and regulators observe and ensure that G-SIBs not only 'talk the talk, but also walk the walk'.[169]

162 Poseidon Principles Website, About Section, www.poseidonprinciples.org/about/, accessed 29 September 2021.

163 Kalyeena Makortoff, 'Europe's Top 25 Banks Failing on Green Pledges, Campaigners Warn', *Guardian*, 6 September 2021, www.theguardian.com/business/2021/sep/06/europes-top-25-banks-failing-on-green-pledges-campaigners-warn, accessed 29 September 2021.

164 Edgar Löw et al., 'Corporate Social', pp. 49–59.

165 Marion Halftermeyer, Nicholas Comfort, Demetrios Pogkas, 'European Banks' Next Big Problem? The CO2 in Their Loan Books', *Bloomberg*, 1 June 2021.

166 ShareAction, *Banking on a Low-Carbon Future II*, April 2020.

167 Eamon Barrett, 'Wells Fargo Is the Last of the Big Six banks to Issue a Net-Zero Climate Pledge. Now Comes the Hard Part', *Fortune*, 9 March 2021, https://fortune.com/2021/03/09/wells-fargo-climate-carbon-neutral-net-zero/, accessed 29 September 2021.

168 However, doubts are raised whether it is a realistic goal, given that only three of these banks set mid-term goals. Makortoff, 'Europe's Top 25 Banks'

169 Knot, 'Getting the Green', p. 4.

1.4.3 COVID-19

This time it really is different. The COVID-19 pandemic caught everyone off guard, causing a crisis originating in the real economy, not in the financial system. Suddenly, banks, the institutions that normally are only supposed to abstain from excessive risks, were tasked with both facilitating the transmission of emergency funds to the real economy and assisting with the recovery.[170] Clients trusted them in the face of this unprecedented uncertainty – US banks grew by around USD 2.4 trillion in the first half of 2020.[171] Governments also bet on them. G-SIBs were meant to channel the financing from various aid programs both in the USA and in the EU.[172] Some argue that they did not fulfil this function properly, as their main goal is making profit.[173] Others claim that they cannot be expected to handle such rescue missions by themselves and governments should back their actions with a guarantee when the shock is of an exogenous nature (as COVID-19 is).[174]

Even though G-SIBs played a completely different role in this pandemic than in most previous global crises, the downturn also constitutes an example of how differently they operate in times of stress.[175] The diversity is visible both in their relations with clients and employees, as well as in their financial results achieved during the COVID-19 pandemic.

First, as for the former, several G-SIBs used government-sponsored relief cheques to cover what a given client owed them instead of paying it out.[176] Further, Bank of America, JP Morgan, and Wells Fargo were accused of favoring big companies over small business in granting PPP loans.[177] On the other hand, Citi for example decided to waive fees on non-Citi ATM usage as well as monthly service fees and penalty fees for early certificate of deposit withdrawals. Similar commitments were made by Goldman Sachs (its retail arm, Marcus).[178] G-SIBs

170 Wolf-Georg Ringe, 'COVID-19 and European banks: No Time for Lawyers', in Wolf-George Ringe, Christos Gortsos (eds), *Pandemic Crisis and Financial Stability*, European Banking Institute, 2020, pp. 44, 52.

171 Hugh Son, 'U.S. Banks Are "Swimming in Money" as Deposits Increase by $2 Trillion Amid the Coronavirus', *CNBC*, 21 June 2020, https://www.cnbc.com/2020/06/21/banks-have-grown-by-2-trillion-in-deposits-sincecoronavirus-first-hit.html, accessed 29 September 2021.

172 For instance the US CARES Act introduced direct payments to households and the Paycheck Protection Program (PPP) aiming at granting loans to small businesses so that they are able to keep paying employees. The EU passed the NextGenerationEU plan encompassing an EUR 800 billion recovery instrument.

173 Nizan Geslevich Packin, 'In too-big-to-fail we trust: Ethics and banking in the era of COVID-19', *Wisconsin Law Review*, 2020.

174 Michael Schillig, 'Banking and finance after COVID-19', *King's Law Journal*, 2021 vol. 32 No. 1. One could argue this is already happening, at least for the G-SIBs, as their funding advantage increased during the pandemic. See Asani Sarkar, 'Did Subsidies to Too-Big-To-Fail Banks Increase during the COVID-19 Pandemic?', *Liberty Street Economics*, 11 February 2021.

175 For an analysis of their differentiated functioning during the GFC see Chapter 2.

176 Packin, 'In too-big-to-fail we trust', p. 105.

177 Ibid, p. 1054.

178 Kelly Anne Smith, Daphne Foreman, 'List Of Banks Offering Relief to Customers Affected by Coronavirus (COVID-19)', *Forbes*, 3 April 2020, www.forbes.com/sites/advisor/2020/04/03/

presented different approaches not only towards their clients but also employees. The return-to-office issue confirmed this diversity. Goldman Sachs hurried its US-based employees back to the office in mid-2021 already. Well Fargo decided to prolong this process through October. Citigroup chose to establish a 'hybrid' setting.[179]

However, the most visible proof of G-SIB diversity is their financial standing resulting from the pandemic. Even though it is clear that post-GFC liquidity and capital requirements protected G-SIBs from serious financial trouble,[180] not all of them sailed through the pandemic without problems. Goldman faired very well, due to its profits from deals and underwriting.[181] It did not look so positive for Bank of America or JP Morgan Chase, which noted net profit almost nine times lower than Goldman.[182] On the other end, Deutsche Bank, SocGen, and Wells Fargo barely swung to profit and Credit Suisse reported a loss.[183] In the profit area it is visible that more investment-oriented G-SIBs were better positioned to profit during the pandemic, especially in comparison to more retail-focused entities, who had to brace for the potential wave of loan defaults. In this context, when it comes to loan-loss provisions, some G-SIBs are obviously more cautious than others. BNP Paribas is still booking provisions and has not started to release any. JP Morgan Chase leads the way when it comes to release. There is also Morgan Stanley, the one bank that commenced with release, but then put aside further billions of dollars.[184]

This diversity shall persist, as COVID-related problems will haunt the society and financial system for the years to come. Even though the global banking system seems to have survived the storm, further challenges caused for instance by inflation will emerge. G-SIBs are going to approach them differently and regulators should be ready for that.

1.5 Summary

By the end of the 20th century the process of banking transformation from simple deposit-taking and lending into comprehensive financial services was practically completed. From the mixture of favorable circumstances, such as loosened capital

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list-of-banks-offering-relief-to-customers-affected-by-coronavirus-covid-19/?sh=60ab8e724efa, accessed 29 September 2021.

179 *Reuters*, 'Factbox: Global Big Banks Plot Back-to-Office Plans as Vaccines Roll Out', 23 July 2021.

180 Viral Acharya, Sascha Steffen, '"Stress Test" for Banks as Liquidity Insurers in a Time of COVID', VOXEU, 22 March 2020, https://voxeu.org/article/stress-tests-banks-liquidity-insurers-time-covid, accessed 29 September 2021.

181 Owen Walker et al., 'Banks Close to Business as Usual in US and Europe Despite Pandemic Effects', *Financial Times*, 13 August 2021.

182 Ibid.

183 Which is partially accredited to the fallout from the Greensill and Archegos cases.

184 Walker et al., 'Banks'.

flows, neoliberal economic theories, new technologies and regulatory leniency, modern banks have emerged. These institutions engage in a range of innovative financial operations, many of which are market-based and highly risky. Customer savings deposits as the main source of funding have been largely replaced by interbank or market funding. Banks face more complex and various risks, such as redefined credit risk, liquidity, and market risks, and a wide array of non-financial risks such as operational or reputational risks.

In that environment, several large, complex, and very internationally active institutions have developed. These G-SIBs, incorporated mainly in the USA and in the EU, have been prevailingly treated as a homogenous group. There are many aspects of their functioning that indicate the opposite. Starting with their history, they have not followed similar paths of development. Some moved in the direction of universal one-stop shops, some preferred to specialize. In the matter of mergers, several constitute a peculiar patchwork of merged institutions, whereas many have not even changed the brand's name and pursue only acquisitions, allowing them to incorporate purchased entities into their existing firm structure. Also, not all of them aggressively engage abroad, and even if some do, then they often spread in different geographical directions.

The most telling proof of the individualistic nature of G-SIBs are their operations during relatively stable times. Their heterogeneity is vividly apparent especially in the example of the financial activities they engage in. Presumptions about G-SIB business models usually overshadow the fact that they increasingly get involved in new tasks, often far from their historical specializations. Funding also varies for each G-SIB and is subject to further misconceptions, especially with regards to the issue of which banks rely on 'stable funding'. G-SIBs also face different individual risks and through their network of intra-institutional connections create various channels of contagion. Not every G-SIB is equally systemically risky. Even in the matter of legal structure, a feature partially prescribed by law, each of these banks has its own individual scheme, constructed within the general regulatory framework. Lastly, institutional investors' ownership matters particularly in the case of G-SIBs – their relations with owners, alignment of goals between management and large shareholders, and fulfilment of expectations are decisive for the governance and thus the future of each such institution. In that respect, various influences and approaches can also be observed. Even though there are many attempts to categorize them under several business models, their conglomerate structure and individualistic character of operations always render it pointless, as very different G-SIBs land in the same category, proving it to be too general. Therefore, it is most sensible to refrain from strict categorization in itself, to treat G-SIBs individually and, only if necessary, to use the terminological generalizations 'investment/retail-oriented', 'universal', and 'custodian'.

Finally, diversity of G-SIBs is already visible in the context of phenomena that most probably will shape future functioning of megabanks. Already now they show different approaches towards relation with Big Tech, green transformation, and COVID pandemic. Following their operations in these areas is crucial in order to spot and potentially address the differences.

Table 1.1 G-SIBs' activities, funding, risks, legal structure and ownership based on the annual reports 2019

G-SIB	*Activities (prevailing one)*[1]	*Top three sources of funding*[2]	*Main risks*[3]	*Long-term debt credit ratings*[4]	*Legal structure*	*Ownership*[5]
JP Morgan Chase	• Consumer and community banking • Corporate and investment banking • Commercial banking • Asset and wealth management	1. Deposits 2. Equity (preferred and CET) 3. Long-term unsecured funding	Strategic, credit and investment, market, operational	A2, A-, AA-	Financial holding company	The Vanguard Group
Citigroup	• Global consumer banking • Institutional clients group banking • ICG markets and securities services	1. Deposits 2. Long-term debt 3. Equity	Strategic, operational, credit, liquidity, compliance	A3, BBB+, A	Financial holding company	The Vanguard Group
Deutsche Bank	• Corporate bank • Investment bank • Private bank • Asset management • Capital release unit • corporate & other	1. Deposits 2. Financial liabilities (trading and investment contracts) 3. Long-term debt	Macroeconomic & market, political, strategic, liquidity, regulatory	A3, BBB+, BBB+	Aktiengesellschaft – stock corporation	Hudson Executive Capital
Bank of America	• Consumer banking • Global wealth & investment management • Global banking • Global markets • Other	1. Deposits 2. Equity 3. Long-term debt	Strategic, credit, market, liquidity, compliance, operational and reputational	A2, A-, A+	Financial holding company	Berkshire Hathaway

BNP Paribas	• Domestic markets • International financial services • Corporate and institutional banking	1. Deposits from customers 2. Derivative financial instruments 3. Technical reserves and other insurance liabilities	Operational, market, credit, interest rate, liquidity, compliance, legal	Aa3, A, A+	Société anonyme – stock corporation	A public-interest limited company (société anonyme) acting on behalf of the Belgian State
Goldman Sachs	• Investment banking • Global markets • Asset management • Consumer and wealth management	1. Unsecured long-term borrowings 2. Deposits 3. Collateralized financings	Market, liquidity, credit, operational, legal, regulatory and reputational	A3, BBB+, A	Financial holding company	The Vanguard Group
Wells Fargo	• Community banking • Wholesale banking • Wealth and investment management	1. Deposits 2. Long-term debt 3. Equity	Operational, compliance, model, strategic, reputation, credit	A2, A-, A+	Financial holding company	Berkshire Hathaway
BNY Mellon	• Investment services • Investment management	1. Deposits 2. Equity 3. Long-term debt	Operational, market, credit, liquidity, strategic	A1, A, AA-	Financial holding company	Berkshire Hathaway
Groupe Crédit Agricole	• Retail banking • Asset gathering • Specialized financial services • Large customers • Other business and subsidiaries	1. Deposits 2. Insurance company technical reserves 3. Debt securities	Credit, market, asset and liability management, operational, compliance and legal, insurance, climate	Aa3, A+, A+	Financial group (Société Anonyme and Regional Banks)	Depending on group component

(*Continued*)

Table 1.1 (Continued)

G-SIB	*Activities (prevailing one)*[1]	*Top three sources of funding*[2]	*Main risks*[3]	*Long-term debt credit ratings*[4]	*Legal structure*	*Ownership*[5]
ING Bank	• Retail banking • Wholesale banking* *There are no clearly established business lines; these two stem from business description	1. Deposits 2. Short-term debt 3. Long-term debt	Credit, macroeconomic, financial crime, model, outsourcing, climate change	Baa1, A-, A+	Naamloze vennootschap – stock corporation	Fisher Asset Management
Morgan Stanley	• Institutional securities • Wealth management • Investment management	1. Customer and other payables 2. Borrowings 3. Deposits	Market, credit, operational, model, compliance, cybersecurity, liquidity, strategic, reputational, conduct	A3, BBB+, A	Financial holding company	SSgA Funds Management
Santander	• Retail banking • Corporate and investment banking • Wealth management and insurance • Corporate centre* * Santander also divides its business into geographical segments	1. Deposits 2. Marketable debt securities 3. Equity	Credit, trading market, structural, liquidity, capital, operational, compliance and conduct, model, strategic	A2, A, A-	Stock corporation	Fisher Asset Management

Société Générale	• French retail banking • International retail and financial services • Global banking and investor solutions • Corporate centre	1. Customer deposits 2. Financial liabilities at fair value through profit or loss 3. Insurance contracts related liabilities	Credit and counterparty, market, operational, structural interest rate and exchange rate, liquidity, model	A1, A, A+	Société Anonyme – stock corporation	Dodge and Cox
State Street	• Investment servicing • Investment management	1. Deposits 2. Accrued expenses and other liabilities equity	Credit and counterparty, market, liquidity, operational, business, reputational	A1, A, AA-	Financial holding company	The Vanguard Group
Unicredit Group	• Commercial banking • Corporate and investment banking • Group corporate centre	1. Deposits from customers 2. Deposits from banks 3. Debt securities in issue	Credit, market, liquidity, operational, non-financial risks (climate change, cyber)	Baa1, BBB, BBB	Stock corporation	BlackRock

[1] According to total revenues depending on data available. Financial data in this table is taken from annual reports 2019, unless indicated otherwise.
[2] As not all of these entities prepare separate disclosures on funding sources, in some cases I used a simplification of the top three positions on the liability/equity side of the balance sheet, depending on data available.
[3] Based on the firmwide Risk Management part of the annual reports.
[4] Ratings from Moody's, S&P's, and Fitch, respectively.
[5] Top institutional investor. Based on CNN Business and Nasdaq as of end of 2019.

Table 1.2 Examples of business model classifications of G-SIBs

G-SIB	*Country/region*	*Roengpitya et al., BIS Working Paper (2017)*	*Hryckiewicz, Kozłowski, JIMF (2016)*	*Ayadi et al. (2016a)*	*Ayadi et al. (2017)**
JP Morgan Chase	USA	Universal	Investment	–	Wholesale, investment
Citigroup	USA	Universal	Investment	–	Wholesale
Deutsche Bank	Germany/EU	Universal	Investment	Investment	–
Bank of America	USA	Universal	Investment	–	Retail (both diversified and focused)
BNP Paribas	France/EU	Universal	Investment	Investment	–
Goldman Sachs	USA	Trading	Investment	–	Wholesale, investment
Wells Fargo	USA	Universal	Traditional diversified	–	Retail (both diversified and focused)
BNY Mellon	USA	Trading	Traditional diversified	–	Wholesale
Groupe BPCE	France/EU	Trading	–	Diversified retail (mostly non-deposit funding)	–
Groupe Crédit Agricole	France/EU	Trading	Investment	Investment	–
ING Bank	Netherlands/EU	Retail-funded	Investment	Investment, diversified retail (mostly non-deposit funding)	–
Morgan Stanley	USA	Trading	Investment	–	Wholesale, retail diversified, investment
Santander	Spain/EU	Retail-funded	Investment	Diversified retail (funded both by deposits and non-deposit liabilities)	–
Société Générale	France/EU	Universal	Investment	Investment	–
State Street	USA	Trading	–	–	Wholesale
Unicredit Group	Italy/EU	Retail-funded	Investment	Diversified retail (funded both by deposits and non-deposit liabilities)	–

* In contrast to the other methodologies, the authors in this study do not take into account holding companies as a whole.

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2 G-SIBs and the Global Financial Crisis

Deregulation vastly contributed to the Global Financial Crisis (GFC). However, the aim of this chapter is not to reconstruct the historical process of regulatory dismantling. Rather, it is to demonstrate a process that enabled some G-SIBs to play a negative role in the outbreak and unfolding of the GFC. Regulation of G-SIBs before the crisis was largely non-existent and the binding provisions were overly general for such diversified entities. Also, supervisors were lacking discretion to adequately tailor the law and hence mitigate the harmful impact of overly general legal rules. As a result, partially non-existent and partially overly general regulation allowed G-SIBs to choose various paths of conduct. Without actually violating legal provisions G-SIBs were able to stretch the legal framework for their own profit. Not all of them followed that pattern, but those that did contributed to the severity of this downturn. Consequently, regulators realized that G-SIB-oriented provisions are urgently needed and also more supervisory discretion should be granted to authorities in order to enable them to adjust the rules more individually.

Initially, the overview of pre-crisis legal rules concerning G-SIBs in the USA and in the EU will be presented. This analysis will be divided into three sections: starting with the legal rules that were obviously missing, moving on to the overly general solutions applicable to G-SIBs, and finishing with the supervisory ability to tailor the binding requirements in a more individualized way. Furthermore, G-SIBs' operations in each of these fields will be described, with a focus on how different banks approached the overly general provisions, either with prudence or seeing an opportunity to exploit the flawed system. Such diverse strategies come as no surprise, given the highly individualized character of each G-SIB. Lastly, the focus will be on the regulatory awakening that finally took place after some of the G-SIBs had contributed to the crisis by stretching these overly general legal provisions.

2.1 Regulation before the GFC: Regulatory loopholes and generalization

The regulatory landscape for banks in the years preceding the crisis was shaped by the prevailing economic theories and stable macroeconomic conditions seemingly

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providing proof of the veracity of these theories.[1] The majority of scholars and regulators embraced the 'Great Moderation', a period of stability and prosperity. It looked like the efficient market hypothesis (EMH) was correct, and so markets could regulate and discipline themselves. The voices saying that this stability is just an illusion and the world economy will have to pay for it were mostly disregarded.[2] It seemed like every regulatory or supervisory action could make this long-awaited economic utopia vanish. So, at the end of the 20th century, financial regulation, including the one on G-SIBs, was rather modest.

There are six main areas of financial law that have commonly been identified as vastly contributing to the outbreak and severity of the crisis. Namely, both regulators and scholars concluded that increased size of assets, excessive leverage, overly low levels of capital (along with its poor quality), unstable funding patterns, and liquidity problems exploited securitization opportunities and the phenomenon of contagion led to the downturn of such magnitude.[3] The pre-crisis regulation will be briefly analyzed through the lens of all these factors that are claimed to have played a part in this downturn.

2.1.1 Non-existent regulation

If one looks comprehensively at the banking regulation pre-crisis, omissions, not flaws, are the most striking. Many aspects of the functioning of large systemic banks were not regulated at all, whether the basic consideration of their designation, their size, levels of liquid assets held, or securitization practices and contagion risk.

Of course, G-SIBs did exist pre-crisis, but they were not identified in any way. As a result, such systemic banks were regulated like much smaller, less complex, and safer banking entities. Both in the EU and in the US legal distinctions were mainly activities-based. Whether commercial bank, thrift or credit union, money market fund, broker dealer, or investment firm, all these entities were subject to specific rules. However, this fragmentation did not change the fact that the scale and scope of G-SIBs, and therefore the threat they could pose to the system was not reflected in the regulatory framework. The only area where size, structure, and special non-banking activities mattered was the supervisory assessment conducted in the USA for bank holding companies (BHCs). The RFI rating regime[4]

1 See Section 1.1.1.1.

2 Raghuram Rajan, 'Has Financial Development Made the World Riskier?', Federal Reserve Bank of Kansas City's Symposium: The Greenspan Era: Lessons for the Future, August 2005.

3 These areas are repeated in the context of G-SIBs in most works on the crisis. See Andrew Ross Sorkin, *Too Big to Fail: The Inside Story of How Wall Street and Washington Fought to Save the Financial System and Themselves*, Penguin Books, 2010; Alan Blinder, *After the Music Stopped: The Financial Crisis, the Response, and the Work Ahead*, Penguin Books, 2013; Adam Tooze, *Crashed: How a Decade of Financial Crises Changed the World*, Viking, 2018.

4 Name of the regime is derived from the assessed aspects: risk management, financial condition, and impact of parent company and non-depository institutions on depository ones. See Federal Reserve,

distinguished between complex and non-complex BHCs. However, the results of this review were not directly linked to any material requirements. It was only intended to provide an overview of an institution's condition to supervisors.

Furthermore, apart from the absence of a designation framework for systemic entities, even the feature drawing a lot of attention – size of assets – was not limited in any particular way. Banks were legally allowed to grow. Even though the Riegle–Neal Act of 1994 forbade the Federal Reserve from approving merger applications resulting in a BHC holding more than 10% of insured deposits nationwide, the law did not consider organic growth and took only insured deposits into account.[5] As for the functional side of growth, the US law effectively forbidding banks from combining commercial and investment banking – the Glass–Steagall Act of 1933 – was abolished.[6] After its repeal in 1999, there were no limits not only regarding size but also regarding the activities that could be combined under one institution's roof. Also in Europe, no legal rules constrained the increase in the size of banking institutions. Actually, the size did not even matter for regulatory differentiation purposes – all small, medium, and large banking institutions were regulated in the same way. Ever-growing banks constituted a symbol and pride of modern capitalistic progress, of the Great Moderation in the USA and of the success of the Single Market and the Euro project in the EU.

Similarly absent from the legal regimes was the aspect of wholesale liquidity. The GFC was not the first downturn in which liquidity turned out to be of essence. It also played a role in the crises of 1907 and 1929, when bank runs shook banking sectors to their foundations.[7] American regulators learned from these retail bank runs and established a national deposit insurance framework in 1933. Since then the Federal Deposit Insurance Corporation (FDIC) administers the system. From the 1980s up until the 2008 ad hoc intervention, deposits were insured up to $100,000 allocated in an account of a given type per depositor per institution. In the EU, deposit guarantee schemes were harmonized in 1994 and set at €20,000 for each depositor per given bank. However, both in the USA and in the EU, laws omitted liquidity stemming from the wholesale market and runs that could occur there. Before the crisis there were no prescribed minimum levels of liquid assets G-SIBs had to hold.

As liquidity crises tend to transform into solvency crises, bankruptcy regimes are also worth mentioning. The field of bank resolution was rather neglected. From the legal standpoint, both in the USA and in the EU, no harmonized

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'Bank Holding Company Rating System', www.federalregister.gov/documents/2004/12/06/04-26723/bank-holding-company-rating-system#citation-9-p70449, accessed 3 December 2021.

5 Also the Riegle–Neal Act did not recognize thrifts or industrial banks to be 'banks', so the acquisition of such was not encompassed. See Michael Barr, Howell Jackson, Margaret Tahyar, *Financial Regulation Law and Policy*, West Academic, 2018, p. 728.

6 Banking Act of 1993 (Glass–Steagall Act).

7 Johan Lybeck, *A Global History of the Financial Crash of 2007-2010*, Cambridge University Press, 2011, pp. 182–192.

regulatory procedure in the event of a near-failure of a G-SIB existed. In the USA, the traditional bank resolution regime by the FDIC applied only to FDIC-insured institutions, not to investment-oriented Wall Street firms, or even bank holding companies. Even though systemic risk exception[8] allowed it to provide financial assistance during a crisis, its financial firepower was strictly limited. In the EU, mostly regular insolvency regimes existed, without special treatment for banks, never mind G-SIBs. They were also more national than EU-wide, so without much relevance for entities with vast cross-border operations. In both legal systems, G-SIBs were not required to keep a loss-absorbing backstop for the case of failure that would cover the claims of creditors and stakeholders.

The next omission of the regulators considered the securitization practices. Both in the aspects of origination and underwriting, restrictions were more or less non-existent. In the matter of origination, no federal laws prescribed requirements as for the repayment ability of mortgage borrowers, and no supervisor required these loans to be specifically reported. What is more, since 2004 the state anti-predatory lending laws did not apply to national banks. The Office of the Comptroller of the Currency issued a regulation pre-empting such state laws.[9] Consequently, even if there were state restrictions on mortgage origination, national banks were allowed to disregard it. Later, the Supreme Court expanded this pre-emption rule to bank's operating subsidiaries.[10] In the EU, a much more bank- than market-based economy, such mortgage origination for securitization purposes was happening on a smaller scale and no harmonized rules limiting it existed. The large banks that engaged in it did it mostly on the US market, so were subject to the modest restrictions described above.

Similarly to origination, also in the area of underwriting there were no specific legal restrictions. The only potential issues with taxes or capital requirements were solved by shifting the securitizations to special-purpose vehicles (SPVs). Also the shifting procedure was not limited – no risk had to be retained at the underwriting institution. Further, the quality of securities was assessed by credit rating agencies, functioning according to the issuer-pays model – no supervisor controlled the ratings. The securitization process was one of the biggest regulatory loopholes pre-crisis.

Lastly, of the three main channels of contagion encompassing swings in asset prices (asset bubbles), concentrated exposures and over-the-counter (OTC) trading, only the exposures were in some way regulated before the crisis.[11] In turn, swings in asset prices constituted a rather non-regulatable issue, especially as the Federal Reserve openly preferred the 'clean' strategy over 'lean'. Namely, Alan Greenspan preferred simply not to interfere when the signs of an asset bubble occurred, as the intervention could have an adverse impact on the economy, and

8 §13 (c)(1)(G) of the FDIC Improvement Act of 1991.
9 See more in Barr, Jackson, Tahyar, *Financial Regulation*, p. 619.
10 In Waters v. Wachovia Bank, 550 US 1 (2007).
11 See below in Section 2.1.2.

one could never be certain of a bubble's existence.[12] He would choose to come to the rescue only after it burst. As for the arguably most destructive channel of contagion – OTC derivatives – they constituted one of the biggest regulatory loopholes, both in the USA and in the EU. Traded off-exchange, without transparency requirements, these instruments created a lot of uncertainty and opacity with regard to pricing. Also, there were no binding rules regarding collateral and margin, which gave a lot of destructive powers to the swap purchasers.[13] Lastly, no clearing houses were intermediating in these trades.

2.1.2 Overly general regulation

One could argue that the regulatory omissions are justified, because you cannot regulate for a future crisis, predict how it will unfold, or what regulation would turn out to be essential. As Ben Bernanke explained, 'It is hard to fix something before it breaks.'[14] However, the rules that were binding at the time before this downturn turned out to be insufficient. The most significant flaw in the context of G-SIBs was neglecting to take into account their individualized character and their systemic importance.

First, when it comes to regulation on leverage, there was a significant divergence between the USA and the EU. Before and during the crisis, there were no limits on leverage in the EU, which explains why EU G-SIBs were more leveraged.[15] Naturally, these banks were automatically in compliance with the law regarding that aspect, given the lack of rules in that area. In contrast, US regulators introduced a binding leverage ratio in the 1990s already as an addition to the US implementation of the Basel I Accord, the international agreement on banking capital requirements. American banks, thrifts, and BHCs, depending on their individual supervisory rating, had to maintain either a 3% or 4% minimum leverage ratio. The assessment was mainly based on management quality and did not take into account systemic features and the vast individualism of G-SIBs, not to mention their divergence from smaller banks and thrifts. Additionally, the Wall Street investment firms were not bound by these provisions, as the subject scope of 'banks and BHCs' prescribed by this rule did not encompass them.[16] Also, the

12 See for instance Alan Greenspan, 'We need a better cushion against risk', *Financial Times*, 26 March 2009.

13 See collateral calls in Section 2.2.4.1.

14 Ben Bernanke, Timothy Geithner, Henry Paulson, *Firefighting: The Financial Crisis and Its Lessons,* Penguin Books, 2019, p. 25.

15 See below in Section 2.2.2.

16 After pressure from EU supervisors, who pointed out the competitive advantage of investment firms over banks providing investment services (for instance Deutsche Bank USA), the Consolidated Supervised Entities Program for five Wall Street investment conglomerates was established. This program was led by the Securities and Exchange Commission (SEC), primarily a market, not prudential, regulator. It prescribed voluntary participation and leverage thresholds. See United States Senate Committee on Finance, 'Report on SEC's oversight of Bear Stearns and related entities: The consolidated supervised entity program', 26 September 2008, www.finance.senate

off-balance sheet items (so for instance assets loaded off to SPVs) were not taken into account in the leverage calculation.

The rules were also very general in the context of risk-weighted capital. At the time, American banks and BHCs were obliged to hold overall capital of at least 8% of total risk-weighted assets (RWAs), and Tier 1 capital at the level of 4%. Similarly in the EU, according to the Capital Requirements Directive of 2006[17] they were supposed to meet the threshold of 8%. Again, these rules did not take into account the specific character of G-SIBs. One could argue that to some extent RWAs constituted a diversification tool, because in principle the riskier banks were supposed to hold more capital. However, this solution did not function exactly as predicted. Firstly, disparities in the implementation of global standards were problematic. Just before the crisis a new Basel Accord (Basel II)[18] was adopted. It introduced the possibility to use internal models to assess risk weights, instead of arbitrary (but uniform) levels prescribed by the previous framework of Basel I. The EU implemented Basel II, while in the USA the implementation was slowed down, and by April 2008 only 12 internationally active banks had started the process.[19] So the banks were caught by the crisis between different RWA strategies.[20] Secondly, the Basel II solution turned out to be problematic as well. Internal models allowed the banks to manipulate their capital levels.[21] All in all, the capital rules were very general, applying the same standards to very different institutions, and the only attempt to adjust them to a given entity's operations did not work as it should have.

Lastly, even though systemic risk was not taken into account in the context of G-SIB designation or prudential standards, the issue of contagion had not been entirely neglected. One of the contagion channels – exposures – had been curbed. Actually, both in the EU and in the US limits on lending to one counterparty already existed pre-crisis. Section 84 of 12 US Code set the limit for loans and extensions of credit to a person by national banks at 15% of unimpaired capital stock (with the possible extension of an additional 10% if the loan was secured). By 'person' most legal forms (including an individual) were encompassed.[22] However, for a long time, interbank liabilities were excluded from this rule, so it mostly applied to relations between banks and other financial entities. In the 1990s, a separate provision was created for the exposures between depositary institutions. It was

.gov/ranking-members-news/secs-oversight-of-bear-stearns-and-related-entities-the-consolidated-supervised-entity-program, accessed 2 December 2021.

17 Art. 75 Directive 2006/48/EC, OJ L 177, 30 June 2006.

18 BCBS, Basel II: International convergence of capital measurement and capital standards: A revised framework, 2006.

19 Barr, Jackson, Tahyar, *Financial Regulation*, p. 298.

20 Simon Gleeson, *Gleeson on the International Regulation of Banking*, Oxford University Press, 2018, p. 112.

21 Ranjit Lall, 'Why Basel II Failed and Why Any Basel III is Doomed', *GEG Working Paper* 2009/52; Mike Mariathasan, Ouarda Merrouche, 'The Manipulation of Basel Risk-Weights. Evidence From 2007–10', *Discussion Paper Series*, Oxford University, September 2012.

22 12 US Code §84 (b)(2).

forbidden to hold a daily credit exposure exceeding 25% of capital, unless the institution could prove that the counterparty had enough capital.[23] However, some state-chartered banks were bound by different limits than their national parents, and the 'loans and extensions of credit' included repos and commercial paper but not derivative transactions, reverse repos, or securities lending.[24] As a result, reverse repos and other secured transactions were essentially excluded from the calculation of the interbank limit.[25] In the EU, the Capital Requirements Directive of 2006 banned exposures to a client or a group of connected clients exceeding 25% of total capital.[26] In both the EU and USA the character of exposures of a given G-SIB's SPVs was unclear. Additionally, limits established on a counterparty basis did not take into account that exposures of a similar character, sensitive to the same macroeconomic conditions, even if established between different entities, will also produce a systemic effect.

2.1.3 Lack of supervisory discretion

Any adverse impact of such general rules could normally be mitigated by means of supervisory discretion. If supervisors have powers to adjust the provisions according to a bank's individual character, they are able to address the vast disparities between specific entities in the banking system. However, this was not the case before the crisis, as sufficient competences to pursue such legal solutions were not granted to relevant agencies.

For instance, in the case of the rules on capital in the USA, supervisory discretion had been gradually dismantled with time. When the first capital requirements for banks were introduced in 1981, multinational institutions had to fulfil the requirement established on the basis of an appropriateness test conducted by the supervisors.[27] Thus, the capital levels for G-SIBs at that time were essentially set on a firm-by-firm basis by the authorities. In 1983 the International Lending Supervision Act tasked federal agencies with establishing minimum capital requirements.[28] However, the subject scope of the rule was rather narrow[29] and already then these authorities worked 'towards common capital standards for all federally insured depository institutions and holding companies'.[30] In the 1990s risk-insensitive leverage requirements and risk-based capital levels were distinguished between. A minimum leverage threshold of 3% or 4% was introduced for

23 12 CFR §206.4 (a)(1).

24 Barr, Jackson, Tahyar, *Financial Regulation*, p. 220.

25 12 CFR §206.4 (d)(1).

26 Art. 111 (1) Directive 2006/48/EC.

27 Thomas Hartmann-Wendels, 'The Leverage Ratio. Design, supervisory objectives, impact on banks' business policy', University of Cologne, January 2016, https://die-dk.de/media/files/Jan_2016_en_komplett_final_korr_002.pdf, accessed 3 December 2021.

28 12 US Code § 3907 as of 30 November 1983.

29 It encompassed 'banking institutions', so mainly insured entities and branches of foreign banks. See 12 US Code § 3902(2) as of 30 November 1983.

30 Barr, Jackson, Tahyar, *Financial Regulation*, p. 268.

all the banks, depending on the supervisory rating.[31] However, as 3% was only applicable to institutions with the highest possible rating, practically all entities were bound by the 4% threshold. As for the risk-based standards, the Basel I levels described above were adopted (8% of total capital and 4% of Tier 1 capital depending on risk-weighted assets), and even though the 1983 provision granting discretion remained in place, thresholds were essentially prescribed and binding.

Also, since 1991 and the FDIC Improvement Act, supervisors' ability to influence required levels was more reactive than preventive. The introduction of Prompt Corrective Action allowed the FDIC to demand depositary institutions hold more capital but only if their levels dropped below a generally prescribed threshold.[32] Similarly with the BHCs – they were only allowed to engage in certain activities if they exceeded predetermined levels of capital.[33] As a result, before the crisis, US G-SIBs were bound by arbitrary capital standards, regardless of their specific features, and federal agencies could not do much about it.

Supervisory powers in respect to setting the capital levels according to the institution's character were also absent from the EU pre-crisis framework. The process of dismantling of supervisory discretion progressed similarly to the developments in the USA. The Solvency Ratio Directive of 1989,[34] which implemented Basel I, allowed national authorities to set levels of capital higher than the minimum 8%. However, so as not to hinder the harmonization efforts of the Basel Accord and to avoid competitive disadvantage for home banks, no supervisor did that. The Capital Requirements Directive of 2006, which introduced the final pre-crisis rules analyzed above and implemented Basel II, gave up on such discretion entirely.[35]

Apart from the capital requirements, supervisors were also lacking discretion in the context of banks' general resilience. Even though the Basel II Accord prescribed Pillar 2 powers, aiming at adjusting the provisions applicable to a given institution on the basis of comprehensive supervisory evaluation, it was not reflected in the regional legal regimes. No stress tests[36] were conducted at that time, and the general supervisory review also seemed rather modest. In the EU no harmonized system of such evaluation existed and national-level solutions could not be perceived as sufficient in the context of G-SIBs. As for the USA, two main supervisory rating systems functioned before the crisis. CAMELS encompassed the assessment of capital, asset quality, management, earnings, liquidity, and sensitivity to market risk. It seems comprehensive, but it only applied to depository

31 See more on supervisory rating CAMELS below in this section.

32 12 US Code § 1831o.

33 12 US Code § 1843.

34 Art. 10 Council Directive 89/647/EEC, OJ L 386, 30 December 1989.

35 Art. 75 Directive 2006/48/EC.

36 There were only exercises to assess the functioning of the internal rating approach for RWAs. See Wilfrid Xoual, 'The Evolution of Stress Testing in Europe', *Moody's Analytics*, September 2013, www.moodysanalytics.com/risk-perspectives-magazine/stress-testing-europe/regulatory-spotlight/the-evolution-of-stress-testing-in-europe, accessed 3 December 2021.

institutions (while most G-SIBs functioned as BHCs or investment firms). Also, apart from the level of minimum leverage ratio, the CAMELS rating mostly served an informative purpose. The final grades were confidential, so any rule strictly dependent on this rating would disclose the result. It provided a general idea about the resilience of the institution to supervisors.[37] It functioned similarly to the above-mentioned RFI rating system, which was intended for BHCs only.

2.2 G-SIBs' adjustments to the general rules

Even though there are many different accounts on what exactly happened during the crisis and why it happened, almost all involved scholars and regulators agree on the set of features that are perceived as reasons for the severity of the downturn. Some of these six aspects (size of assets, leverage, capital (including losses to capital and raising it), funding patterns, and liquidity, securitization, and contagion) were not regulated, and others only generally. This general character of regulation on G-SIBs' functioning, especially in the context of their diverse business models, resulted in various strategies that these entities chose to adjust to the rules. Importantly, G-SIBs did not violate the law in many of these respective areas. General provisions allowed them to use the room for maneuver. Some of them focused only on profit and their approach contributed to the severity of the downturn; others chose a more prudent path and remained relatively resilient.

2.2.1 Size of assets

Undeniably, most G-SIBs vastly increased in size at the beginning of the 21st century. The five biggest US G-SIBs – JP Morgan Chase, Bank of America (BoA), Citigroup, Wachovia, and Wells Fargo – rose to a combined size of $6.8 trillion in 2007, from 'just' $2.2 trillion in 1998. The investment-oriented banks – Goldman Sachs, Merrill Lynch, Morgan Stanley, Bear Stearns, and Lehman Brothers – reached $4 trillion in the year before the crisis, multiplying the size of their assets by four in less than ten years.[38] National banking sectors expanded enormously compared to GDP. Despite the geographically American origins of the crisis, the US banking sector was smaller relative to GDP in comparison to European countries.

> In (…) Austria, Germany, France, Spain, Ireland, and Denmark – banking assets exceeded 300 percent [of GDP]. Three member states – Sweden, The Netherlands, and the United Kingdom – had banking assets in excess

37 Ron Feldman, Jason Schmidt, 'What Are CAMELS and Who Should Know?', *Federal Reserve Bank of Minneapolis*, 1 January 1999, www.minneapolisfed.org/article/1999/what-are-camels-and-who-should-know, accessed 3 December 2021.

38 See Financial Crisis Inquiry Commission, 'Final report of the National Commission on the causes of the financial and economic crisis in the United States', January 2011 (FCIC Report), p. 81.

of 400 percent of GDP, and in the United Kingdom the figure approached 500 percent.[39]

Objectively, size cannot be treated as an accurate indicator of financial health (or illness). The banks that faced the worst problems during the crisis were not the biggest ones. Lehman Brothers, which had to file for bankruptcy, and Bear Stearns, which was forced 'into the arms of JP Morgan'[40] to avoid doing so, were actually the smallest of 'the Wall Street Five'.[41] The biggest ones – Goldman Sachs and Morgan Stanley[42] – weathered the storm, in spite of the unfavorable market circumstances after Bear's and Lehman's demise. Additionally, even the biggest of the investment-oriented institutions were relatively small compared to banks like JP Morgan Chase, Bank of America, or Citigroup. Some of these G-SIBs not only survived the crisis but even came to the rescue of the smaller entities. As mentioned, Bear Stearns did not fail because it was bought by JP Morgan. In a similar way Bank of America saved Merrill Lynch from imminent bankruptcy. In fact, if one believes that size of assets is such a decisive sign of potential financial problems, it should come as a surprise that US banks were not even the biggest in the world at that time. According to 2008 Bloomberg data, even after the acquisition of Bear Stearns by JP Morgan Chase, three European banks still occupied the top spots of the size ranking. HSBC Holdings, Royal Bank of Scotland, and Deutsche Bank combined had over $1 trillion in assets more than JP Morgan Chase, Bank of America, and Citigroup combined.[43]

Even if someone wanted to argue that it was not only investment banks that fell into trouble, but also universal banks, it usually did not have much to do with their size in itself. Citigroup owed it to risky business strategies, involving special investment vehicles (SIVs) and overestimating its balance sheet.[44] Deutsche bet everything on its investment activities and so shared the problems of the Wall Street institutions.[45] What about Wachovia and Bank of America, which grew immensely and simultaneously retained a diversified business model (leaning towards retail, not investment banking)? In both cases financial problems and

39 Sharyn O'Halloran, Thomas Groll, Geraldine McAllister, 'Overview of the Financial Crisis and Its Impacts', in Sharyn O'Halloran and Thomas Groll (eds), *After the Crash. Financial Crises and Regulatory Responses*, Columbia University Press, 2019, p. 23.

40 Robin Sidel et al., 'The week that shook Wall Street: Inside the demise of Bear Stearns', *The Wall Street Journal*, 18 March 2008.

41 Five investment-oriented banks that were not bank holding companies before the crisis, and thus different requirements applied to them (as well as different protection in the case of failure): Goldman Sachs, Merrill Lynch, Morgan Stanley, Bear Stearns, Lehman Brothers.

42 Moorad Choudhry, Gino Landuyt, *The Future of Finance: A New Model for Banking and Investment*, Wiley, 2011, p. 22.

43 Ibid, pp. 46–50.

44 Christian Plumb, Dan Wilchins, 'Citi to Take $49 Bln in SIVs onto Balance Sheet', *Reuters*, 14 December 2007, www.reuters.com/article/us-citigroup-sivs-idUSN1326316020071214, accessed 4 December 2021.

45 Tooze, *Crashed*, p. 114.

the need for support had more to do with their poor merger decisions, not with the increase in assets as such. Wachovia and Bank of America, both based in Charlotte, were constantly competing not only for Charlotte's skyline dominance, but also in the banking business.[46] As Bank of America had significant presence in the western states, Ken Thompson of Wachovia made a controversial decision to also expand. In 2006, when threats of the crisis were looming on the horizon, Wachovia bought Golden West Financial, increasing its branch network by 285 branches, 123 of which were based in California. Unfortunately for Wachovia, Golden West's flagship financial product was a 'pick-a-pay' adjustable-rate mortgage. A large portfolio of these led to huge losses at Wachovia when the crisis struck and ultimately forced it into acquisition by Wells Fargo.[47] It owed its demise to a poorly timed and miscalculated merger decision, not its size in itself.

Similarly problematic was Bank of America's purchase of Countrywide, one of the country's largest mortgage originators,[48] finalized in June 2008. Only a few months earlier, when the deal was announced in January, BoA was convinced it would 'benefit from Countrywide's broader mortgage capabilities, including its extensive retail, wholesale and correspondent distribution networks'.[49] But by the end of 2008, with mortgage markets crashing down after Lehman's collapse, BoA also started to report losses. Apart from Countrywide's burden, it was supposed to take over Merrill Lynch in January 2009. As BoA's CEO realized how bad the situation was, he considered backing down from the deal with Merrill.[50] Henry Paulson threatened that he (or the Fed) would remove the CEO and the whole board if they decided to cancel the deal.[51] Lewis of BoA had no choice. Consequently, the financial trouble that BoA faced stemmed mostly from two bad merger decisions: one independent and one enforced by the government. BoA indeed increased, but its size of assets probably would not have caused the problems it experienced if it had not been for the toxic 'content' of acquired companies.

In Europe, Fortis could serve as a similar example. At the end of 2007 the Benelux bank participated in the consortium to acquire part of ABN Amro. It managed to raise fresh capital to cover the bill, but the amount of negative goodwill inherited from ABN was overwhelming. Another call for capital resulted in a wholesale run and ultimately led to Fortis' nationalization.[52] Again, even though it was one of Europe's biggest banks, its size of assets had little to do with the described financial problems.

46 Rick Rothacker, *Banktown. The Rise and Struggles of Charlotte's Big Banks*, John F. Blair, 2010.
47 FCIC Report, p. 332.
48 Ibid, p. 532.
49 Bank of America, 'Bank of America agrees to purchase countrywide financial corp.,' SEC Press Release, www.sec.gov/Archives/edgar/data/25191/000089882208000052/exhibit991.htm, accessed 3 December 2021.
50 FCIC Report, p. 411.
51 Ibid, p. 412.
52 Johan Lybeck, *The Future of Financial Regulation. Who Should Pay for the Failure of American and European Banks?*, Cambridge University Press, 2016, pp. 200–205.

2.2.2 Leverage

The term 'leverage' quickly became a buzzword during and after the Global Financial Crisis.[53] The measure of total assets over shareholder equity[54] was believed to have skyrocketed at almost all large financial institutions. However, the story of G-SIBs' leverage during the crisis was not as black and white as it might appear. From an empirical point of view, data on leverage varies vastly between different sources. This partially stems from the fact that some authors use the total assets over Tier 1 equity formula, and some others calculate it utilizing tangible assets over tangible common equity, which could show higher results, as accounting definitions of tangible assets vary. However, all of the data sources demonstrate common tendencies showing how G-SIBs handled leverage in the face of the then binding legal standards.

In the USA, the minimum requirement of 4% curbed the temptation to take on unlimited levels of leverage. However, it still left room for G-SIBs to adjust. Not all of these entities increased leverage in the run-up to the GFC, even though according to the praised theory by Modigliani and Miller it seemed like a profitable thing to do. For instance, JP Morgan and Bank of America even deleveraged between 2000 and 2007 – JP's leverage dropped from almost 19 to 12[55] and BoA's from 14 to 12.[56] Wells Fargo kept a steady leverage of around 11, and very low leverage was reported at the end of 2007 by BNY Mellon (6.7).[57] These were examples of the entities that tried to remain resilient in the run-up to the crisis.

It could be argued that closer analysis of leverage during the critical months of 2007–2009 reveals that the banks mentioned above as being less leveraged additionally increased this measure during the turmoil.[58] It is indeed true for Bank of America, JP Morgan Chase, and even Wells Fargo. However, one must carefully examine the timing of such increases. For Bank of America it happened during the third quarter of 2008 when it was digesting the misguided acquisition of Countrywide. In the case of JP, the increases in the second and third quarters of 2008 were caused by the process of incorporation of Bear Stearns' toxic balance sheet into the healthy company. Similarly, Wells Fargo's drastic jump in

53 Martin Hellwig and Anat Admati describe how leverage influences financial institutions and especially increases their fragility to swings in the value of assets. See Anat Admati, Martin Hellwig, *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It*, Princeton University Press, 2014.

54 There are several ways to express leverage, depending on the perspective of leverage or leverage ratio. It can be measured as debt to equity, or assets to equity, or in other words assets to core capital (leverage). It can also be calculated 'the other way round' – as capital to total assets (leverage ratio). Usually the latter option is utilized in regulatory requirements.

55 These values are calculated using the formula of total assets over core capital.

56 Choudhry, Landuyt, *The Future*, p. 46.

57 BNY Mellon, 'Annual Report 2007', https://cdn.trombino.org/uploads/files/annual-report-%20bnymellon%20-%202007.pdf, accessed 4 December 2021.

58 See Figure 12.4 in Steve Strongin, '"Too Big to Fail" from an Economic Perspective' in Martin Neil Baily, John Taylor (eds*), Across the Great Divide. New Perspectives on the Financial Crisis*, Hoover Institution Press, 2014.

leverage in the fourth quarter of 2008 stemmed from its acquisition of Wachovia. Apart from Bank of America, these increases were not driven by a will to turn to a more leveraged business model but by external factors and the enforced 'shotgun weddings'.[59]

However, many did increase their leverage as a strategy to boost profits, simply taking the opportunity granted by the general provisions. For instance Citigroup almost reached a leverage of 18 in 2007, starting from 13 in 2003.[60] Citi was especially profit-oriented and it exploited significant loopholes in the leverage provisions. Namely, it loaded off many of its risky assets to SPVs, and off-balance sheet items were not encompassed by the leverage ratio formula. When it was forced to take some of the assets on its balance sheet in 2008 its leverage jumped to 22.[61] Another omission that also incentivized some US G-SIBs to raise leverage was the lack of analogical provision for investment-oriented entities, such as Goldman Sachs, Lehman Brothers, or Morgan Stanley. As a result, Morgan Stanley and Merrill Lynch held almost three times more leverage than more commercial/retail-oriented entities – Wells Fargo or JP Morgan.[62] However, even among the investment entities some remained more prudent than others. The range between the highest (Bear Stearns) and lowest (Goldman Sachs) leverage of the Wall Street Five amounted to 7 points.[63]

One could argue that many investment-oriented G-SIBs have used accounting gimmicks and off-balance sheet vehicles to offset the leverage for reporting purposes.[64] Lehman Brothers' transactions called Repo 105, which were accounted for as sales, not financings, allowed the bank to get rid of as much as $50 billion of assets at quarter-end.[65] At the end of each reporting period the American parent transferred said assets to its British subsidiary, because under UK law this financing disguised as sales was acceptable. Similar practices were discovered at Bear Stearns.[66] Wasn't that against the law? Firstly, neither Bear nor Lehman rigged their leverage levels in order to comply with regulatory requirements, as they were not bound by them. They did so because rating agencies were urging them to deleverage and threatening them with rating downgrades that would result in financing problems. Second, they violated provisions concerning US GAAP accounting standards, but not the leverage ratio requirements.

As for the EU and its non-existent leverage provisions, this legal omission was reflected in the operations of EU G-SIBs. Some exploited the competitive

59 Adam Tooze calls these mergers in this way. See for instance Tooze, *Crashed*, p. 283.

60 Choudhry, Landuyt, *The Future*, pp. 46–47.

61 Ibid.

62 For the average score of difference between investment and commercial entities see Figure 1 in Darrell Duffie, 'Prone to Fail: The Pre-Crisis Financial System', *Journal of Economic Perspectives,* 2019, 33, p. 86.

63 See Lybeck, *Future*, p. 304 (in order for Bear to be included).

64 Blinder, *After*, p. 50. and FCIC Report, p. 93.

65 Rosalind Z. Wiggins, Andrew Metrick, 'The Lehman Brothers Bankruptcy C: Managing the Balance Sheet Through the Use of Repo 105', *Journal of Financial Crises,* 2019, 1/ 1, p. 81.

66 FCIC Report, p. 309.

advantage against their US counterparts. The highest levels of leverage at US institutions, for instance 27 at Goldman and 30 at Lehman, constituted around half of the leverage of the most burdened EU banks. The most leveraged banks were certainly those aiming to compete for profits with US investment giants. Deutsche Bank had its leverage level at over 50,[67] SocGen reached 36 and BNP Paribas 34.[68] Of course, some of the EU G-SIBs chose to remain more prudent, but even the lowest leverage among European G-SIBs was at the level of 17 (Santander), so still much higher than many of the American banks. The average in Europe peaked at 33.5.[69]

2.2.3 Capital, losses, and raising capital

Capital ratios and losses to capital constitute two sides of the same coin. The higher the capital ratios, the bigger the probability of withstanding losses and still retaining reasonable levels of capital. Losses on assets, or write-downs in assets, are absorbed by equity and so its decrease can lead to undercapitalization. In such a situation a bank must either raise fresh equity (the numerator of the capital ratio equation), or get rid of risk-weighted assets (the denominator of the capital ratio equation). This was exactly the situation that some G-SIBs faced during the GFC. However, this issue is much more complex than the general common conclusion that they did not have enough capital.[70]

In September 2008 Bloomberg reported that since mid-2007, $591 billion had been written down by banks across the world.[71] Many of them had indeed become undercapitalized, but capital ratios among G-SIBs varied vastly. At the end of 2007 most of the American G-SIBs looked relatively respectable in terms of capital, and they complied with the binding requirements of 8% of total capital and 4% of Tier 1 capital (both over risk-weighted assets). BNY Mellon and State Street were beyond comparison with their 9% and 11% of Tier 1 capital, respectively.[72] JP Morgan had Tier 1 capital of 8.2%, Wells of 7.6%, while BoA, Wachovia, Washington Mutual, and Citigroup were at around 7%. None of the US G-SIBs held Tier 1 ratios below 6%.[73] As for total capital, JP Morgan Chase reported 12.6%, Wells Fargo 10.7%, BoA 11%, Wachovia 11.8%, Washington Mutual

67 Choudhry, Landuyt, *The Future*, p. 48–49.

68 Ibid.

69 Based on the 18 biggest banks before and during the crisis, Switzerland and UK included. Data from Choudhry, Landuyt, *The Future*, p. 46.

70 One of the most radical proposals in that context is the position of Admati, Hellwig, *The Bankers' New Clothes*.

71 Losses and write-downs in relation to mortgage-backed assets. OECD, Economic Surveys: United States 2008, www.oecd-ilibrary.org/economics/oecd-economic-surveys-united-states-2008_eco_surveys-usa-2008-en, accessed 3 December 2021, p. 76.

72 BNY Mellon, 'Annual Report 2007', and State Street, 'Annual Report 2007', https://s26.q4cdn.com/446391466/files/doc_financials/2007/ar/2007-Annual-Report.pdf, accessed 3 December 2021.

73 Lybeck, *A Global History*, p. 231.

(WaMu) 12.3%, and Citigroup 10.7%. None of these American institutions went lower than 10%, so according to this parameter all seemed fine.[74] Of course, it is noticeable that some entities maintained levels closer to the minimum than others and, tellingly, those were the banks that got into trouble – Citigroup, BoA, WaMu, and Wachovia. This balancing on the brink could be especially visible in terms of CET1 capital.[75] For Citi and BoA, CET was only 4.9%, the lowest among the large banks. In contrast, Wells Fargo and JP Morgan Chase were still well off with 6.5% and 7.0%, respectively.

European G-SIBs were also sufficiently capitalized for the standards at that time. Deutsche had its top tier at close to 9% and total capital levels at 11.6%.[76] BNP Paribas and ING kept Tier 1 at around 7%, and overall capital close to 10%. Of the large EU retail-oriented banks, UniCredit and Spanish BBVA had the lowest Tier 1 ratios, both below 6%, but in terms of total capital they still complied with the requirements by holding over 10%. The lowest ratio was observed at SocGen, but it still amounted to as much as 8.9%. No EU bank violated the capital rules, but the same tendency as with US G-SIBs is visible – some banks bet more on profits than capital and general provisions allowed them to pursue such a strategy.

One could argue that many American and European banks used accounting gimmicks and sophisticated financial instruments to cover up their low levels of capital. Lehman and Bear temporarily got rid of their risky assets at the end of the quarter.[77] Many European banks chose a different strategy – French G-SIBs, such as BNP Paribas and SocGen, along with German KfW and other entities bought plenty of default insurance from AIG for the case of losses in their risky portfolios. Tooze estimates that this maneuver 'allowed them to save a total of $16 billion in regulatory capital'.[78] However, it should not be omitted that all these actions were allowed by law, so it does not change the legal situation of G-SIBs in this field and the fact that later financial issues originated at entities in compliance with the general binding provisions.

As it turned out, relatively high capitalization, as prescribed by the legal rules, did not have much to do with the level of losses suffered when the mortgage market started going down. Even though risk-weighted assets constitute the denominator in the capital ratio formula, mortgage-related assets were not adequately rated as very risky. Consequently, the burden of mortgages/collateralized debt obligations (CDOs) was not mirrored by the capitalization ratios. It only revealed itself when it came to individual write-downs. Citigroup suffered the most of all G-SIBs, having written down a total of $160 billion between 2007 and 2009.[79]

74 Ibid.

75 Importantly, common equity (CET) levels most suitable to absorb losses were lower than all these numbers, as total capital consists of Tier 1 and Tier 2, whereas Tier 1 in turn consists of different types of stock in addition to common equity. See Figure 12.3 in Strongin, '"Too Big to Fail"'.

76 Ibid.

77 FCIC Report, p. 309.

78 Tooze, *Crashed*, p. 133.

79 Lybeck, *A Global History*, p. 169.

The two 'well-capitalized' banks, BoA and JP Morgan, had to deplete the value of their assets by $106 and $73 billion, respectively. Goldman Sachs experienced the lowest write-down ($11 billion) of both American and European banks. Even Lehman's $30 billion drop in asset value was more than two times smaller than Merrill's ($73 billion). In Europe, the reported write-downs were also quite surprising. Deutsche Bank certainly did not lose the most, but 'only' $33 billion, which does not look so tragic compared to $86 billion by HSBC and $66 billion by UBS. As in the USA, the investment-oriented banks suffered the lowest losses in value. It was not because they did not engage in mortgage-related business. Rather, they rarely kept these assets on their balance sheets, and if they did, then they only held onto the senior tranches. Additionally, many of these institutions bought protection against defaults of the securities they were holding.

As the banks needed to boost their capital ratios, but the market for assets that they wanted to get rid of the most was already closing, they turned to the markets to raise equity. Importantly, all of the G-SIBs were able to raise capital both in 2007 and 2008. Of course, the outcomes and goals varied among these banks. Surprisingly, Merrill Lynch raised the most common equity in that period, followed by JP Morgan Chase and Bank of America. Markets still trusted Merrill – it raised $10 billion in fresh equity even on 7 October 2008, mainly because its fate as part of BoA was decided and that calmed investors. At that point in time, Wells chose to issue preferred equity. BNY Mellon did not raise capital at all, as it did not need it.[80]

One could think that the better capitalized and more able to raise equity the G-SIB, the more it could weather the storm. But this was not always the case. At the end of the second quarter of 2008, WaMu was one of the best capitalized banks in the USA. It had over 2 percentage points higher capital ratio than both JP Morgan and Wells Fargo.[81] Its losses did not exceed $10 billion by mid-2008. It also managed to raise common equity in the second quarter of 2008. Unfortunately, due to a run on its deposits triggered by Lehman's bankruptcy and unwillingness to help from the government's side,[82] it had to be taken over and sold by the FDIC at the end of September 2008, only months after it raised fresh equity.

Fatalities of WaMu and Lehman have revealed a relevant phenomenon – even a truly well-capitalized bank, if it suffers huge, unexpected write-downs

80 Bernanke, Geithner, Paulson, *Firefighting*, p. 175.

81 See Figure 12.3 in Strongin, '"Too Big to Fail"'.

82 Two versions of reasons for WaMu's failure are presented in these sources. First, the report of the Senate Subcommittee makes a case about WaMu's high-risk lending strategies. See United States Senate Permanent Subcommittee on Investigations, Wall Street and the Financial Crisis: Anatomy of a Financial Collapse, 13 April 2011 (PSI Report), Chapter III, https://cutt.ly/9jzsXtj, accessed 5 December 2021. Second, many authors claim that WaMu, or rather its CEO, never managed to make friends at the government level. See Kirsten Grind, 'The Inside Story of WaMu – The Biggest Bank Failure in American History', *CNBC Blog*, 20 June 2012, https://www.cnbc.com/id/47874555, accessed 4 December 2021.

followed by a run of both wholesale and retail clients, will find itself on the brink of failure.[83] Solvency may be relevant in the long-term perspective, but liquidity forces banks to develop short-term survival skills. Illiquidity and funding often turn out to be lethal to financial institutions, before anyone even assesses their solvency.

2.2.4 Funding patterns, liquidity, and resolution

We can distinguish between two main types of funding, the so-called 'stable sources' such as deposits and equity and the 'unstable' or 'market-based' funding, including wholesale borrowing, repo transactions, and commercial paper. Theoretically, non-deposit funding is considered more dangerous in times of crisis, mostly because it is not backed by the government. Both in Europe and in the US retail deposits are guaranteed to a certain extent to mitigate people's instincts to run on a bank when the market indicates a given entity could have financial problems (or even when a different bank with a similar business model has financial problems).[84]

How did G-SIBs fund themselves before and during the turmoil? In the run-up to the crisis, deposit funding in the banking sector certainly deteriorated, and the other forms of financing increased in popularity.[85] Money market funds became the major investors in Europe-based G-SIBs. 'They were a key source of dollar funding for the European megabanks.'[86] Overall, European entities have relied much more on non-deposit funding than other large international banks.[87] That does not mean that American G-SIBs did not turn to wholesale markets for funding. Bank of America, Citigroup, and JP Morgan Chase were the biggest issuers of asset-backed commercial paper (ABCP). 'By the summer of 2007 Citigroup alone was guaranteeing $92.7 billion in ABCP, enough to wipe out its entire Tier 1 capital.'[88] In turn, the investment-oriented institutions dominated repo markets. Lehman Brothers and Merrill Lynch had between 15% and 20% of total liabilities stemming from repo transactions. This fraction was only around 5 percentage points lower for Morgan Stanley and Goldman Sachs. Additionally, for all of the Wall Street investment-focused banks except for Goldman, the overnight and open (callable on demand) repos constituted more than 40% of all repo funding.[89] Such financing tendencies contributed to liquidity problems.

83 See Richard Bove, *Guardians of Prosperity: Why America Needs Big Banks,* Portfolio, 2013, p. 119.

84 See Section 2.1.1.

85 Rita Babihuga, Marco Spaltro, 'Bank Funding Costs for International Banks', *IMF Working Paper*, April 2014, WP/14/71, p. 3.

86 Tooze, *Crashed*, p. 227.

87 Babihuga, Spaltro, 'Bank Funding', p. 7. Also Tooze mentions that 57% of all dollar-denominated commercial paper was issued by European sponsors – see Tooze, *Crashed*, p. 114.

88 Tooze, *Crashed*, p. 108.

89 FCIC Report, p. 324.

2.2.4.1 Liquidity problems and resolution

Given the lack of minimum standards for liquid funding and with no guarantees of wholesale financing analogical to those for deposits, unpredictability governed the days in 2007 and 2008.[90] The financial landscape was full of contradictions at that time. Bear Stearns originally had liquidity that was predicted to allow it to survive at least a month, and in the end it did not survive a week. After Lehman failed and Merrill was acquired by BoA, Morgan Stanley automatically became 'the next in line', even though it had passed all assessments in June 2008 and had slightly more liquidity than Goldman Sachs at that point.[91] The unpredictability of the market in the aspect of liquidity was accurately summed up by Henry Paulson, who refused to believe Bear would survive as long as a month (as Treasury experts had estimated) and pointed with brutal honesty 'I do not buy that. When confidence goes, then it goes.'[92] Even a lot of liquidity could deplete fast in extreme market conditions. Due to the lack of guarantees and minimum requirements, G-SIBs lost trust in one another. There were four main ways for this confidence to evaporate.

Firstly, collateral calls in tri-party repo markets had brought down several institutions and endangered many others. Only two G-SIBs served as clearing banks in regard to repo transactions – JP Morgan and BNY Mellon. The former serviced repos for Lehman, Merrill, and Bear, whereas the latter cleared transactions for Morgan Stanley and Goldman Sachs.[93] Their main risk as clearing houses for repo was the potential default of one of the transaction counterparties during the day. Should that happen, they would be left with securities serving as collateral on their books and would be forced to liquidate them.[94] To mitigate that risk the clearing banks started 'calling for collateral', so that they would be protected in the event of a drop in value of the given securities. Lending parties of the repo agreements could also demand more collateral once they started losing confidence in the borrower. Such collateral calls by JP Morgan contributed to the collapse of the two hedge funds of Bear Stearns in 2007. Money market funds' requests for more collateral and higher interest rates also led to Bear Stearns' demise at the beginning of 2008. Lehman's liquidity pool decreased tenfold in the course of three days due to calls by JP Morgan, Bank of America, and Citigroup.[95]

Importantly, collateral calls can also take place outside the repo market, for instance in swap transactions, when a swap buyer demands assurance that he will get paid or when the valuation of a given instrument changes. In 2011 such calls on interest rate swaps led Dexia to the brink of bankruptcy and forced the Belgian

90 'The result of the collective flight to safety, not by households but by the largest actors in the global financial system, was a trillion-dollar disaster'. Tooze, *Crashed*, p. 228.
91 FCIC Report, p. 360.
92 Blinder, *After*, p. 103.
93 FCIC Report, pp. 283 and 295.
94 Ibid, p. 295.
95 Tooze, *Crashed*, p. 221.

and French governments to bail it out.[96] In the USA, Goldman Sachs was one of the most persistent collateral chasers. In 2007 it started demanding additional collateral from AIG for its credit default swaps. Every day, for 14 months, AIG received a demand letter from Goldman.[97] The insurance company disagreed with Goldman's valuation, and the argument was heated.[98] But Goldman was right, and eventually, by June 2008, it had received $7.5 billion in collateral. These calls directly contributed to the urgent need to bail out AIG after Lehman failed.

Another reason for liquidity depletion is refusal to roll over commercial paper and repo. In the context of short-term funding, rolling over normally constitutes a formality, especially between G-SIBs. As the confidence 'went' during the crisis, refusing to extend such financing caught many institutions off guard, not only in terms of liquidity but also market trust. For instance, on 11 March 2008, Goldman refused to novate a subprime derivative position, as a result of which it would become counterparty to Bear. It simply 'did not want to face Bear'.[99] Even though Goldman eventually accepted the novation 16 minutes (!) after the original rejection, the rumour spread, and it further decreased confidence in Bear to the extent that two days after that incident it had to receive a loan from the Fed intermediated by JP Morgan Chase.

Last, the most historically common cause for liquidity depletion are bank runs. A classic run involves retail customers withdrawing their deposits because they believe the bank will probably fail, so they will lose money if they do not. However, during the GFC it was mainly wholesale investors who ran on the banks. Runs on wholesale deposits directly contributed to the failure of Fortis and WaMu. Actually, the fact that WaMu's unsecured creditors did not receive protection from the FDIC caused a run of creditors on Wachovia, contributing to the fatal domino effect for the Charlotte-based giant. In the case of those G-SIBs, a prevalence of deposit funding did not guarantee their survival. In 2011, money market funds withdrew funding from the European banks, regardless of their financial strength. Even giants like BNP Paribas suffered then.[100] Surprisingly, money market funds mostly retreated to the 'safety' of the largest conglomerates with insured deposits and a diversified liquidity basis – the direction was to abandon investment-oriented banks, like Lehman and Bear, and the ailing institutions such as WaMu, and move funds to JP Morgan Chase and Deutsche Bank.[101]

These liquidity depletion scenarios in some cases resulted in the near-failure or even failure of institutions. The lack of a specific legal regime concerning wholesale liquidity influenced not only the entities that failed due to a lack of liquid funding but also the ones that triggered these failures by means of their collateral calls or roll-over refusals. Each G-SIB had to take care of itself in this

96 Ibid, p. 575.
97 FCIC Report, p. 265.
98 Sorkin, *Too Big*, p. 161.
99 FCIC Report, p. 288.
100 Tooze, *Crashed*, p. 538.
101 FCIC Report, p. 383.

aspect. In the absence of comprehensive resolution regimes for G-SIBs before the crisis, when the liquidity problems turned into solvency issues, supervisors had to become creative and do their best with the tools at their disposal. In the USA, the most common strategy was to find a bigger systemic bank and entice it/force it to take over the ailing entity. The depository institutions (for instance Wachovia) were taken over by the FDIC. The agency also arranged another big bank to purchase their operations (Wells Fargo in the case of Wachovia). The 'find a buyer' strategy worked for investment-oriented firms too. Bear Stearns was bought by JP Morgan Chase and Merrill Lynch by Bank of America. It is often assessed that actually Lehman was only allowed to fail in a disorderly manner because no buyer for it was found. In the EU, strategies were less capitalistic and most national regulators simply nationalized problematic banks (for instance Fortis and Dexia), a solution almost unthinkable in the USA.

2.2.4.2 Liquidity supplementation

Several G-SIBs avoided the threat of failure thanks to liquidity facilities offered by the governments. The analysis of liquidity-providing programs can clarify the picture and contribute to the assessment of which G-SIBs actually had sufficient levels of liquidity and which not. As the schemes were voluntary, institutions that benefited from them on a large scale must have needed these funds. Importantly, the analysis shall demonstrate which entities approached the lack of legal standards prudently and which allowed themselves to exploit this regulatory omission.

Liquidity assistance was arranged in the form of various central-bank-sponsored facilities.[102] As financial institutions would commonly associate the Federal Reserve's regular discount window with a stigma, the US central bank had to think of another solution. It established the Term Auction Facility, designed as the name indicates as an auction to acquire short-term funds. This program was intended to address the closure of ABCP markets at the end of 2007. Among the top five borrowers from that facility, only the first (BoA) and fifth (Wells Fargo) were American.[103] The other three banks – Barclays, Royal Bank of Scotland (RBS), and Bank of Scotland – exploited the gesture of the foreign central bank. For repo markets the Fed prepared Single-Tranche Open Market Operations, a program that was again utilized prevailingly by European banks, including Credit Suisse, Deutsche Bank, and BNP Paribas as the top three beneficiaries. From March 2008 on, the Fed lent out highly rated Treasuries (needed for collateral) under the Term Securities Lending Facility (TSLF). The TSLF and its additional options program were mostly used by Citigroup, RBS, Deutsche, Credit Suisse,

102 The focus here will be put mostly on the Federal Reserve's programs, as EU G-SIBs were also benefiting from those, and the ECB launched only one bond purchasing action, in May 2009. The rest of the ECB's liquidity undertakings focused on sovereign debt issues later on.

103 All data in this paragraph stems from the analysis by James Felkerson, '$29,000,000,000,000: A Detailed Look at the Fed's Bailout by Funding Facility and Recipient', *Levy Economics Institute Working Paper* No. 698, December 2011.

and Goldman Sachs. After the Bear Stearns debacle, the Fed opened a 'discount window for primary dealers' – the Primary Dealer Credit Facility – granting overnight funding not only to banks but also to the investment-oriented institutions. This was one of two liquidity schemes that mostly American financial entities benefited from. Merrill Lynch received the most, followed by Citigroup, Morgan Stanley, Bear Stearns,[104] and Bank of America. The second facility used prevailingly by the US institutions was the Term Asset-Backed Securities Loan Facility. It granted five-year loans to different companies from the financial sector, including Morgan Stanley and PIMCO. In addition to the above-mentioned programs, the Fed also set up the Commercial Paper Funding Facility to buy commercial paper. Again, recipients were mainly European, with UBS, Dexia, and Fortis in the top ten. The only American G-SIB utilizing that scheme was Citigroup.

Reading this alphabet soup of Federal Reserve liquidity facilities and its beneficiaries, one notices that some names are often repeated. Citigroup constituted the single largest participant in all those programs combined.[105] It is not an investment-oriented bank, and it had a relatively strong deposit base, and yet it still needed liquidity boosts. The top ten ranking of G-SIBs most in need of liquidity is generally quite surprising. Merrill and Morgan Stanley as numbers two and three are pretty predictable, given their bumpy road through the crisis. However, Goldman was placed in seventh, with less than a half of the liquidity assistance value granted to Merrill or Morgan. Markets were mistaken to treat these banks as similarly unstable ones. Also, the 'strong' JP Morgan did benefit from the facilities but drew an amount five times lower than Citigroup and two times lower than BoA. The absences should also be noted – BNY Mellon and State Street, two G-SIB custodians, do not appear in the context of liquidity supplementation at all. Wells Fargo did not seem to need much liquidity either. As for European G-SIBs, Deutsche Bank was not the one with the biggest liquidity demands; it was Barclays, followed by BNP Paribas, that drew the most. However, some names are repeated and were also mentioned in the aspects of leverage and capital. Liquidity needs confirm the indication that Citigroup, even though in compliance with the law, boosted profits through neglecting stability. This also applies to Deutsche Bank and BNP Paribas.

2.2.5 Securitization

Securitization constitutes one of the financial innovations that became popular at the end of the 20th century. Especially after the savings and loan crisis in the USA in 1980, when the maturity mismatches between long-term mortgages and their funding led to the failure of many financial entities, it seemed more reasonable for

104 The deal between Bear and JP was sealed on 16 March, exactly when the facility was opened. Bear did not constitute part of JP Morgan Chase yet, so it was entitled to the funding.

105 Felkerson, 'A Detailed Look', p. 33.

banks to shift the risk off their balance sheet.[106] Lower risk meant lower capital requirements, since these requirements were prevailingly dependent on RWAs. Also, SPVs normally had better ratings than the banks themselves, so their funding became cheaper. Additionally, at that time mortgages seemed to be very stable and investors were looking for high-rating investments with returns higher than the treasuries. Consequently, securitization increased immensely from $767 billion at the end of 2001 to $2.7 trillion in December 2006.[107] Many G-SIBs participated in the process of inflating this bubble, and many also suffered when the market spectacularly collapsed in 2008. However, the roles they played in bringing down the housing market varied. In order to follow their actions, it is necessary to decompose the process of securitization. It consists of two main stages – origination of the loan (performed by originators) and securitization in a narrow sense, including tranching and underwriting (by entities usually called arrangers).

2.2.5.1 Origination

As described above,[108] no legal provisions created a safe framework for mortgage origination. Before the crisis, real estate was perceived as one of the most reliable and stable assets. Regulators did not see reasons to limit the booming market. Most of the G-SIBs engaged in this business, some cautiously, and others less so.

The common feature was that G-SIBs were rarely granting these loans themselves. In 2005 only Wells Fargo of the banking institutions was among the top ten direct originators.[109] Many of the G-SIBs established a pipeline for loan production, mainly by purchasing originating entities. Bear Stearns purchased the private lender EMC Mortgage already in the 1990s. Lehman Brothers bought six originators between 1998 and 2004. 'In 2005 two thirds of the mortgages contained in Lehman's issuance of $133 billion in MBS/CDO (mortgage-backed securities/collateralized debt obligations) were sourced from its own subprime loan originators.'[110] In the autumn of 2007 it still did not slow down. On the contrary, in October Lehman bought Archstone, an enormous real estate investment trust.[111] Merrill Lynch and Morgan Stanley also acquired domestic lenders. Only Goldman Sachs among the investment-focused banks did not actually purchase an entity with the purpose of faster loan origination. However, it

106 Sheila Bair, Ricardo Delfin, 'How Efforts to Avoid Past Mistakes Created New Ones. Some Lessons from the Causes and Consequences of the Recent Financial Crisis', in Martin Neil Baily, John Taylor (eds), *Across the Great Divide. New Perspectives on the Financial Crisis*, Hoover Institution Press, 2014, p. 24.

107 Viral Acharya, Matthew Richardson, 'Causes of the Financial Crisis', *Critical Review*, 2009, 21/2&3, p. 200.

108 See Section 2.1.1.

109 Blinder, *After*, p. 59.

110 Tooze, *Crashed*, p. 104.

111 FCIC Report, p. 176.

increased its investment in Senderra Funding, a subprime lender, and also provided funds in the form of credit lines and repo to the biggest originators such as Countrywide or Ameriquest.[112] Not only investment-oriented banks wanted to establish their positions in the subprime world. Citigroup acquired Associates First in 2000, the second-largest mortgage lender in the USA at that time. BoA purchased Countrywide. Wachovia bought Golden West with its adjustable-rate pick-a-pay mortgages. Also some of the European G-SIBs wanted to be a part of the subprime boom. At first, Deutsche Bank cooperated with Countrywide and Ameriquest, but in 2006 it bought two US domestic lenders. In contrast to these banks attempting to benefit from the securitization schemes, there were entities that did not participate in that process. For instance, BNY Mellon and State Street did not engage in the subprime market. They are indeed prevailingly custodian and clearing banks, but both have investment departments and could have taken part in the mortgage boom. Also JP Morgan and Wells Fargo 'had been fairly conservative'[113] when it came to securitization. Neither of them bought or invested in an originator. This was partially because they were able to originate these loans on their own, but one should not forget that BoA and Citi also had that opportunity and still aggressively engaged in the development of a broader subprime lending framework.

2.2.5.2 Underwriting

The G-SIB landscape looked a bit different in the context of the actual securitization of mortgages. After the origination, they had to be 'turned into' liquid, high-rating securities.[114] Whichever entity originated the loans, they needed to be tranched (grouped up in large blocks of different maturities and ratings), securitized/underwritten, and shifted to the SPV. In 2007 Citigroup was the largest issuer of CDOs, with a 10% share of the worldwide issuance, and the absolute king among SPV creators. In November 2008 it had closed some SPVs and as a result took around $17 billion of CDOs onto its balance sheet. This package had been worth $70 billion more just a year earlier. Some $120 billion in CDOs were still spread among different vehicles.[115] Between 2004 and 2007 together with Goldman Sachs and Merrill Lynch, Citi securitized more than 30% of all CDOs. A senior executive at Merrill Lynch even told his team to do 'whatever it

112 Ibid, p. 88.

113 Mike Mayo, *Exile on Wall Street: One Analyst's Fight to Save the Big Banks from Themselves,* Wiley, 2011, p. 92.

114 Asset-backed securities (ABS) and mortgage-backed securities (MBS) were more basic instruments backed by many smaller assets. In contrast, collateralized debt obligations (CDOs) consisted of 'fewer but larger and more heterogeneous assets, including high yield bonds, leveraged loans, and tranches of other securitizations.' See Barbara Casu, Anna Sarkisyan, 'Securitization', in Allen Berger, Philip Molyneux, John Wilson (eds), *The Oxford Handbook of Banking*, Oxford University Press, 2014, p. 12.

115 Lybeck, *A Global History*, p. 144.

takes' to become number one in the CDO business.[116] Bear Stearns, much smaller in size than any of the three, also ranked very high in underwriting private-label MBSs.[117]

Additionally, for some institutions 'simple securitization' was not enough, and they wanted to maximize profits further. They kept 'improving' financial products according to their needs and market conditions. And so in 2003, Citi started structuring CDO tranches as short-term asset-backed commercial paper. Aware of the liquidity issues behind this concept, they wrote liquidity puts on this instrument. This meant that Citi was obliged to repurchase the paper should no buyer want it at maturity, or if the cost of the interest reached a pre-agreed level.[118] Basically, this G-SIB was taking on a burden of two leveraged products instead of one. Only a few banks followed, for instance SocGen and BNP.

Goldman also became inventive during the securitization boom. In 2004 it started creating the novelty of synthetic CDOs. These instruments were not backed by the pool of mortgages. They consisted of credit default swaps (CDSs) betting whether a reference pool of mortgages will default or not. It was Goldman's solution to the drying up of mortgage sources – in the end there are only a certain number of houses you can take a mortgage on. The most infamous synthetic CDO issued by the bank – Abacus 2004-1 – led to enormous losses at Wachovia, IKB, and AIG. Goldman, which was betting against the reference pool of mortgages, gained around $930 million.[119] After the first Abacus, a second one was launched, along with other synthetic CDO issues. Goldman also engaged in CDO-squared – CDOs backed by a pool of CDOs – for instance Timberwolf, described by Goldman employees as 'one shitty deal'.[120]

Not all the G-SIBs 'danced until the music stopped'.[121] Not all engaged equally in the securitization madness, exploiting the lack of regulation in this field. For instance, JP Morgan Chase started decreasing its, not too large to start with, positions in the CDO market already in 2006. Wells Fargo followed suit. Many European G-SIBs were never tempted by the Wall Street deals, as Deutsche Bank was.

The worst aspects of the G-SIBs that engaged aggressively in the CDO manufacturing was their recklessness, thirst for profit, and the general lack of knowledge about the content of individual securitizations. Ben Bernanke already in 2007 admitted that he did not know 'what those damn things are worth'.[122] The

116 FCIC Report, p. 202.
117 Blinder, *After*, p. 101.
118 FCIC Report, p. 138.
119 Ibid, p. 142. More on the Abacus by Goldman case in the PSI Report, p. 395.
120 PSI Report, p. 395.
121 Reference to the quote by Citi's CEO Chuck Prince, who said: 'When the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you've got to get up and dance. We're still dancing.' See Michiyo Nakamoto, David Wighton, 'Citigroup Chief Stays Bullish on Buy-Outs', *Financial Times*, 9 July 2007.
122 Blinder, *After*, p. 78.

G-SIBs did not either. Merrill's write-down predictions were two times lower than reality, and Citi's no less than seven times.[123] Sometimes the same CDO would be valued by one bank at 75% par, and at 95% by another.[124]

2.2.6 Contagion

Ten years after the Global Financial Crisis, Warren Buffet was asked by a CNBC correspondent to reflect on this downturn. He stressed that 'we're [financial institutions] all dominoes. And we're all very close together',[125] pointing at the threat of contagion that materialized during the 2008 downturn. Indeed, systemic risk and contagion have been at the center of attention since the bankruptcy of Lehman Brothers. Supervisors and experts realized that the externalities of individual failure can be much more detrimental than the failure itself.[126] Contagion and systemic risk are aspects that stem from the combination of the features described above, such as leverage, and of the particular characteristics of G-SIBs.

To begin with, a lack of designation of G-SIBs left some uncertainty as to which institutions were systemically important and to what extent. A lot of doubt was raised especially concerning the investment firms, such as Bear or Lehman, as they were not significant in size compared to other market players. Without an appropriate methodology, regulators and counterparties were essentially guessing what systemic threat a particular bank could pose.

Furthermore, there are several channels for financial problems to spread in the system, most of them actually allowed by the general regulations and established by the G-SIBs' actions analyzed above.[127]

The first channel of contagion revealed itself even before Lehman failed. Systemic risk is perceived as risk that a failure would pose a threat to the financial system and beyond. It does not always have to be institutional failure. In 2007 and 2008 it was also a failure of asset values or market failure. When the housing market collapsed, all mortgage-based securities decreased in value. As many G-SIBs invested in those, or held some on their balance sheets, their losses moved in sync with falling house prices. In this way the burst bubble influenced many actors in the financial system. Most prone to suffer were those G-SIBs that extensively

123 Bernanke, Geithner, Paulson, *Firefighting*, p. 41.

124 FCIC Report, p. 70.

125 Matthew Belvedere, 'Warren Buffett: In the 10 Years since Financial Panic, We've Learned We're "All Dominoes" Spaced Closely Together', *CNBC*, 10 September 2018, www.cnbc.com/2018/09/10/warren-buffett-2008-financial-crisis-showed-we-are-all-dominoes.html, accessed 4 December 2021.

126 For more on the basics of systemic risk see Xavier Freixas, Luc Laeven, José-Luis Peydró, 'A Primer on Systemic Risk', in Xavier Freixas, José-Luis Peydró, Luc Laeven (eds), *Systemic Risk, Crises, and Macroprudential Regulation*, MIT Press, 2015.

127 See Section 1.3.1.3. As further reference see Xavier Freixas, Luc Laeven, José-Luis Peydró, 'Contagion', in Xavier Freixas, José-Luis Peydró, Luc Laeven (eds), *Systemic Risk, Crises, and Macroprudential Regulation*, MIT Press, 2015.

engaged in securitization, so for instance Citigroup, the investment-oriented Wall Street banks, and Deutsche Bank.

Secondly, exposures between institutions play a significant role in every systemic shock. It is closely linked to the trust factor necessary both in interbank relations and in the market itself. Even though limits on large exposures existed both in the USA and in the EU,[128] they were very arbitrarily set at one level, regardless of the individual characteristics of the G-SIBs. They also did not take into account many novel instruments such as reverse repos, securities lending, or derivatives. It is difficult to assess whether the G-SIBs in the EU and in the USA complied with these provisions, due to the complexity of their operations.[129] However, no violations were reported. In addition, not all reactions regarding exposures in the financial world were rational. As mentioned before,[130] a G-SIB only has to have a similar business model to a bank that actually is in trouble, or have any links (not only large exposure) to such an institution, for wholesale counterparties, as well as retail clients, to start collateral calls or withdrawals. That was the case for Goldman and Morgan Stanley, the two last Wall Street investment banks, after Lehman failed and Merrill Lynch was to become part of Bank of America.

The panic stretched even further. It was clearly not about exposures any more but about any connotation with problematic institutions. As Timothy Geithner, NY Fed boss at that time, pointed out: 'You had people starting to take their deposits out of very, very strong banks, long way removed in distance and risk and business from the guys on Wall Street that were at the epicentre of the problem.'[131] Hence, the funding and liquidity problems were spreading through the financial system regardless of the actual strength of banks' balance sheets and of their business models. Also very well-capitalized institutions like custodian State Street or JP Morgan Chase clearing repos were at risk, due to their operations entangling them in the complex network of interdependencies. Any move could trigger an avalanche. When BNP stopped withdrawals from its two funds in 2007, repo markets were hit and as a consequence Countrywide suffered too, as it was mostly funding itself there. When Goldman refused (for 16 minutes only!) to novate a transaction and thus to become exposed to Bear Stearns, markets stopped trusting Bear. When the FDIC proceeded with the bail-in of WaMu's unsecured creditors, lenders to Wachovia ran in fear they would soon share this fate.

The contagion stretched well beyond banks and even financial institutions. When Lehman Brothers failed,[132] money market funds that had invested

128 See Section 2.1.2.

129 The Basel Committee stressed after the crisis that 'banks did not always consistently measure, aggregate and control exposures to single counterparties (…) across their books and operations', which indicates that concerns persisted. However, no breaches were reported. See BCBS, 'Supervisory framework for measuring and controlling large exposures', 15 April 2014, point 1.

130 See Section 2.2.4.1.

131 FCIC Report, pp. 353–354.

132 More on Lehman spillover effects in Nicolas Dumontaux, Adrian Pop, 'Understanding the market reaction to shockwaves: Evidence from the failure of Lehman Brothers', *Journal of Financial Stability*, 2013, 9, pp. 269–286.

extensively in its commercial paper were left with almost nothing. That triggered a run on these funds and led to the Reserve Primary Fund actually 'breaking the buck' (going lower than $1 on its share price).[133] Rationality was long gone by then. Markets had suddenly perceived commercial paper to be very risky and hence, by default, any company funding itself with commercial paper, for instance General Motors, also got hit.[134] Consequently, the exposure channel of contagion did not have much to do with the strength of G-SIBs' balance sheets, their business models, or even with whether a particular entity was a financial institution. Systemic shocks in this case were based on the market's irrationality and anyone could be harmed.

Lastly, trading in OTC derivatives constituted the third most relevant way of risk spreading that aggravated the situation during the crisis and was also absent from the regulatory frameworks. The market for these instruments boomed between 2000 and 2008. In only eight years the notional amount of OTC derivatives outstanding globally increased from $95.2 trillion to $672.6 trillion and the gross market value spiked from $3.2 trillion to $20.3 trillion.[135] In the USA 97% of the notional amount of OTC derivative contracts was traded by five G-SIBs: JP Morgan Chase, Citigroup, Bank of America, Wachovia, and HSBC. JP Morgan's position amounted to its total on-balance sheet assets multiplied by 60, which stands in contrast to its generally prudent strategy.[136] The size and concentration of the market created the following paths of contagion. Primarily, OTC derivatives, or the non-exchange character of derivatives, brought about issues with valuation. Each bank or financial entity had its own calculation method for the value of underlying and for related risk, which contributed to uncertainty in the market and price opacity.[137] Lack of stability in this market impaired the hedging opportunities of G-SIBs.

On the other hand, the same search for protection lay at the foundations of another contagious derivative phenomenon – CDSs.[138] These OTC derivatives, an invention from 1994, were to JP Morgan Chase what dynamite was to Alfred Nobel. None of the young JP team members that invented CDSs could have thought that these contracts would immensely contribute to the near-failure of the world's biggest insurer – AIG.[139] AIG wrote over $79 billion of value in OTC CDSs.[140] Basically every institution that realized it was in urgent need of

133 Blinder, *After*, p. 143.
134 FCIC Report, p. 339.
135 Ibid, p. 48.
136 Lybeck, *The Future*, p. 361.
137 See the part on the valuation argument between AIG and Goldman in Section 2.2.4.1.
138 For an empirical analysis of CDS spillover effects see Sheri Markose, Simone Giansante, Ali Rais Shaghaghi, '"Too interconnected to fail" financial network of US CDS market: Topological fragility and systemic risk', *Journal of Economic Behavior & Organization*, 2012, 83.
139 Gillian Tett, *Fool's Gold: The Inside Story of J.P. Morgan and How Wall St. Greed Corrupted Its Bold Dream and Created a Financial Catastrophe*, Free Press, 2009.
140 FCIC Report, p. 243.

protection against mortgage defaults turned to AIG. The Financial Crisis Inquiry Commission (FCIC) published a list of payments from the insurer to its CDS counterparties. The top three beneficiaries were SocGen, Goldman, and Merrill Lynch.[141] Also Deutsche Bank, Wachovia, and Bank of America made the list. All these institutions would have suffered enormous losses if it hadn't been for AIG's government bailout. Instead of shifting the risk, they would have been hit anyway. Both sides of CDS transactions were thus prone to contagion: the party that sold the protection and the party that bought it. As Nijkens and Wagner have proven, the hedging strategy of 2008 backfired. It did decrease individual risk, but simultaneously it caused the systemic risk to rise, threatening the whole financial system.[142] Institutions most engaged in the CDS business, such as AIG or Goldman, were the ones channeling potential losses.

2.3 Authorities awaken

When the crisis struck, supervisors and regulators were 'forced to stare into the abyss'.[143] First, they realized that scarce regulation and the lack of discretion to adjust rules to specific institutions had resulted in a 'legal bubble'. Banking institutions mostly in compliance with the law started trembling and supervisors were not sure why this was happening. Also, their prevailing reactive strategy 'not to tell the banks how to run their companies' seemed to be failing.[144] Now, they had to act to save their economies and minimize the consequences of their mistakes. Initially, still during the downturn, regulators turned to ad-hoc measures at their disposal. Later, they also imposed fines on most of the G-SIBs responsible for the severity of the crisis. However, these punishments were prevailingly based on grounds of misleading investors regarding the quality of mortgages – they were not related to aspects of leverage, capital, or exposures, because G-SIBs complied with these provisions. Lastly, once the dust had settled, regulators embarked on a path of reform.

2.3.1 Ad-hoc help

Apart from strictly liquidity-related injections described in Section 2.2.4.2, governments organized other forms of financial help for banks. They introduced more long-term solutions, aimed at restructuring and/or improving the overall condition and solvency of banking entities. These were the so-called bailouts. The

141 Ibid, p. 377.

142 Rob Nijskens, Wolf Wagner, 'Credit risk transfer activities and systemic risk: How banks became less risky
individually but posed greater risks to the financial system at the same time', *Journal of Banking & Finance*, 2011, 35.

143 Timothy Geithner, *Stress Test: Reflections on Financial Crisis*, Broadway Books, 2015, p. 208.

144 SEC supervisor answered in this way to a question why SEC could not ask Bear Stearns to reduce their risk. See FCIC Report, p. 283.

most famous of these schemes was the Troubled Asset Relief Program (TARP). This solution is well known as the several-page-long bill that had passed through Congress because Hank Paulson got down on one knee before Democratic leader Nancy Pelosi.[145] Then the banks got money, which they did not deserve according to the public. The program did more than bail out the banks though. It also included help for the car industry and a rescue plan for the housing market. Most of it was of course about the financial industry – asset guarantees and equity purchases made up the biggest share of the money allocated to TARP. In October 2008 Paulson practically forced the CEOs of nine major US G-SIBs to accept government capital. However, the exact share a given bank received can be misleading at first sight – not only because some G-SIBs did not want it.[146] Two banks that were weathering the crisis pretty well, JP Morgan and Wells Fargo, initially got the most – $25 billion each, along with Citigroup, which was in serious trouble.[147] Was Bank of America in such better shape than any of those three that it only received $15 billion? No, the October capital injection was not the final one. In addition to Merrill Lynch's TARP share of $10 billion that would flow to BoA in early 2009, in December 2008 a new program was established within the TARP framework – the Targeted Investment Program. This facility served only one purpose – the bailout of BoA and Citigroup. Each received $20 billion for preferred stock.[148] As a result, these two G-SIBs topped the list of TARP beneficiaries with their $45 billion each. Importantly, AIG received almost $70 billion in TARP money, more than any of the G-SIB beneficiaries.

In EU the situation looked different. The most aid was received by the smaller banks, not the G-SIBs. Top was Sparkasse Köln-Bonn, with a bailout of €650 million, Hypo Real Estate was third with its aid of €30 million. The continental EU G-SIBs were only fifth (Commerzbank €18.2 million) and sixth (ING with €17 million).[149] However, ING's capital injection is not indicative, as the Dutch government decided in favor of it 'just to make sure',[150] as ING constitutes the Netherlands' only financial institution of such magnitude.

Importantly, financial aid was not the only form of assistance offered by the governments. After Bear Stearns was acquired by JP Morgan Chase, after Lehman failed and Merrill Lynch signed the deal with Bank of America, Goldman Sachs and Morgan Stanley were the two last investment-oriented firms standing on Wall Street. During the hectic days from 16 September 2008 onwards, many options

145 Suzanne Goldenberg, 'A Desperate Plea - Then Race for a Deal before "Sucker Goes Down"', *The Guardian*, 27 September 2008.

146 Wells Fargo's CEO was most explicit about not wanting TARP funds. See Matthew Belvedere, 'TARP Didn't Save Banks, It Ruined Them: Kovacevich', *CNBC*, 13 September 2013, www.cnbc.com/id/101032772, accessed 4 December 2021.

147 Lybeck, *The Future*, p. 384.

148 US Department of the Treasury, 'Targeted investment program', https://home.treasury.gov/data/troubled-assets-relief-program/bank-investment-programs/tip, accessed 4 December 2021.

149 Lybeck, *The Future*, p. 197. Of course these are bailouts and capital injections related to the housing market crash in the US.

150 Ibid, p. 205.

were considered. NY Fed's Timothy Geithner wanted to marry Morgan and JP, but Jamie Dimon was against it ('You've got to be kidding me. I did Bear.').[151] No one wanted Goldman either. Eventually, in order to increase the market's trust in them and provide unlimited access to the Fed's discount window and the FDIC's deposit insurance, the Fed approved their application to become bank holding companies. This step, combined with the raising of capital (Morgan sold a 20% stake to Mitsubishi, and Goldman received an injection from Warren Buffet), calmed the markets and prevented the complete extinction of Wall Street-style banks.

As mentioned before in various contexts, regulators not only granted financial support and fast administrative approvals but also arranged or even sometimes enforced 'shotgun weddings' of troubled institutions with suitors presumed to be stronger. In this way the Fed and Treasury organized and financially facilitated JP's acquisition of Bear Stearns. Further, the FDIC supported Wells' offer to take over Wachovia. Paulson and Geithner also tried to find a savior for Lehman. They even sometimes intervened when one side wanted to bail on the pre-agreed deal. After Merrill's toxic assets were revealed and Bank of America wanted to back down from its agreement to acquire the investment bank and invoke the material adverse change, Hank Paulson 'informed Lewis [BoA's CEO] that invoking the clause would demonstrate a "colossal loss of judgment" by the company'.[152] The Fed and Treasury forced BoA to go through with the deal. Tim Geithner's pad where he was writing down potential mix-and-match 'marriage arrangements' has become legendary.[153]

The months from September 2008 to early 2009 saw the supervisors extremely active in comparison to their earlier lethargy. However, this period of activity did not stop once the main threats to the financial system had been addressed. In February 2009, the Supervisory Capital Assessment Program (SCAP) was announced. With it, supervisors were starting the era of extensive stress testing. SCAP was supposed to indicate which of the biggest US banks should raise capital. Out of 19 tested BHCs, ten did not withstand the adverse scenario and were asked to increase their capital bases.[154] The results of the stress test somehow confirmed the tendencies visible in the analysis above – some G-SIBs remained prudent and established capital cushions, and others just fulfilled regulatory minima, without exceeding them by much, in order to boost profits. Among the adequately capitalized G-SIBs according to SCAP we can find JP Morgan, Goldman Sachs, State Street, and BNY Mellon. In turn, Citigroup, BoA and others had to raise capital.[155] Ben Bernanke dubbed the SCAP exercise 'one of the critical turning

151 Sorkin, *Too Big*, p. 462.
152 FCIC Report, p. 384.
153 Sorkin, *Too Big*, p. 459.
154 Federal Reserve, 'The Supervisory Capital Assessment Program: Overview of results', 7 May 2009.
155 Ibid.

points in the financial crisis'.[156] It allowed investors to gain information and some certainty about the situation of individual G-SIBs. At the same time, it has shown that assessments on a firm-by-firm basis are crucial for the stability of the markets.

2.3.2 G-SIBs' redemption

Supervisors did not stop at the ad-hoc measures saving the entities and calming the markets. Actually, the governments seemed to be 'the only thing between [the G-SIBs] and the pitchforks'.[157] Indeed, the public wanted to see G-SIBs punished and regulators actually delivered in that matter. Even though almost 'nobody went to jail',[158] financial firms had to pay billions of dollars in fines in both civil and administrative proceedings.

It is tricky to assess which of the G-SIBs actually paid the most in fines stemming from the financial crisis, because many criminal, civil, and administrative proceedings were stretched throughout time, and new scandals emerged in-between. However, according to a study from KBW published in early 2018, the banks' monetary punishment amounted to $243 billion in fines and settlements.[159] Top of the list was occupied by Bank of America ($76 billion) and JP Morgan Chase ($43.7 billion). These two were followed by Citigroup, Deutsche Bank, and Wells Fargo. Charges of misleading investors about the quality of underlying mortgages constituted most common ground for those fines. Why did the two fairly 'calm' G-SIBs in terms of securitization[160] account for almost half of the total sum? Firstly, they acquired the shadiest institutions, which would otherwise have been doomed to fail during the crisis. BoA purchased Countrywide and then Merrill Lynch. JP Morgan got Bear Stearns and a large part of WaMu's business. Secondly, they faced some financial fallouts that were not related to the crisis. JP's London Whale episode alone cost $920 million.[161] Just as these high penalties for JP and BoA do not exactly mean that they were the most fraudulent institutions during the crisis, so the relatively low fines imposed on Goldman Sachs and

156 Ben Bernanke, 'Stress testing banks – what have we learned?', Speech at the 'Maintaining financial stability: holding a tiger by the tail' Financial Markets Conference, sponsored by the Federal Reserve Bank of Atlanta, Stone Mountain, Georgia, 8 April 2013, www.bis.org/review/r130409c.pdf, accessed 4 December 2021.

157 Eamon Javers, 'Inside Obama's Bank CEOs', *Politico*, 3 April 2009, www.politico.com/story/2009/04/inside-obamas-bank-ceos-meeting-020871, accessed 4 December 2021.

158 This mantra was often repeated post-crisis. Most of the fines stemmed from administrative and civil proceedings, not criminal ones. See Barry Ritholtz, 'Why No One Went to Jail in the Financial Crisis', *Bloomberg*, 26 July 2017.

159 Steve Goldstein, 'Here's the Staggering Amount Banks Have Been Fined since the Financial Crisis', *MarketWatch*, 24 February 2018, www.marketwatch.com/story/banks-have-been-fined-a-staggering-243-billion-since-the-financial-crisis-2018-02-20, accessed 4 December 2021.

160 See Section 2.2.5.

161 Chris Isidore, James O'Toole, 'JPMorgan Fined $920 Million in "London Whale" Trading Loss', *CNN*, 19 September 2013, https://money.cnn.com/2013/09/19/investing/jpmorgan-london-whale-fine/index.html, accessed 4 December 2021.

Morgan Stanley should not indicate that their record was spotless. In the case of these two institutions, the rule of no-retroactivity mitigated their potential fines. As investment-oriented banks before their transformation into bank holding companies they were subject to different disclosure and conduct requirements. Had they been BHCs already before the crisis when they were marketing their products, the final bill may have looked a lot different.

2.3.3 Regulatory resolutions

In the aftermath of the crisis, regulators decided to prove that they had learned their lesson and that the proactive attitude was here to stay. Many resolutions have been articulated. Hillary Clinton stated that 'Wall Street can never be allowed to threaten Main Street again. No bank can be too big to fail, no executive too powerful to jail.'[162] Christine Lagarde, then President of the International Monetary Fund, also stressed that 'regulation is necessary, particularly in a sector, like the banking sector, which exposes countries and people to a risk.'[163] President Obama promised a 'bill that will bring greater economic security to families and businesses across the country'.[164] The theories praising efficient markets, cleaning over leaning, and the Great Moderation lost their value and no longer determined regulatory paths.

Most importantly in the context of G-SIBs, two main reforms had to be introduced. First, a regulatory framework for these entities seemed crucial. It meant not only eliminating the evident omissions but also amending existing rules, so that they take into account the individual character of G-SIBs and their systemic features. Secondly, broadening supervisory powers appeared necessary both in terms of ex-post tools as well as preventive competences to shape regulatory standards on a more firm-by-firm basis. The authorities simply should not have to 'fight the crisis with duct tape and baling wire' again.[165]

2.4 Summary

Before the GFC, the legal regimes of the USA and the EU applying to G-SIBs were full of omissions and did not take into account their specific nature. In retrospect, among the non-existent regulations one can identify a lack of a designation methodology and process to assess which entities are systemically important and

162 Tara Golshan, 'Hillary Clinton's Victory Speech in Nevada', *VOX*, 20 February 2016, www.vox.com/2016/2/20/11080176/hillary-victory-speech, accessed 4 December 2021.

163 Christine Lagarde, 'Christine Lagarde: Facing Down Worldwide Recession', *CBS News*, 21 November 2011, www.cbsnews.com/news/christine-lagarde-facing-down-worldwide-recession/, accessed 4 December 2021.

164 President Obama on Passage of Financial Regulations Bill, *C-SPAN*, 15 July 2010, www.c-span.org/video/?294569-3/president-obama-passage-financial-regulations-bill, accessed 4 December 2021.

165 Bernanke, Geithner, Paulson, *Firefighting*, p. 54.

to what extent. Liquidity requirements were absent from the framework, as was a resolution regime for banking conglomerates. Securitization practices and OTC trading were also not comprehensively regulated. In turn, rules that were binding before and during the crisis did not take into consideration how G-SIBs differ not only from other smaller entities but also among themselves. Very general risk-based capital requirements and leverage standards, as well as exposure limits, left G-SIBs with great room for maneuver. In any event, supervisors were not able to tailor these rules according to the features of a particular institution. A seemingly stable economic situation created the regime of 'no-interference'.

Consequently, G-SIBs were able to adjust their business model to the general provisions. Two main strategies could be observed: some G-SIBs chased profits and chose to retain the minima just to comply with the prescribed requirements, while others remained more prudent, better capitalized, and more cautious when it came to innovations such as the securitization business. This division is visible in all of the regulatory fields analyzed above. Some G-SIBs grew recklessly without taking into account the quality of the assets they were taking on. It has become clear that while growth in itself matters, it is actually quality of assets that is more important. Further, G-SIBs represented very different levels of leverage. From the entities encompassed by the US leverage limits, evidently Citigroup chose the strategy to lower stability but gain on profits. JP Morgan deleveraged and Wells Fargo remained stable. In turn, European G-SIBs were more leveraged than American ones, due to the lack of leverage ratio provisions in the EU. The highest levels of leverage were noted at the EU banks trying to compete with American entities in the mortgage business, so at Deutsche Bank, SocGen, and BNP Paribas. With regards to risk-dependent capital ratios, two similar strategies of conduct under binding rules were visible. Roughly the same entities that boosted leverage also lowered capital or got rid of RWAs. Further, the lack of rules on liquidity led to uncertainty, mistrust, and panic on the wholesale market – these more prudent G-SIBs started executing their rights to call for collateral or not to roll-over repos. In turn, the profit-oriented G-SIBs engaged more in securitization both at origination and underwriting levels. Contagion risk increased, given the lack of trust in the markets and very vague exposure limits. Some G-SIBs established even more complex and significant interdependencies (for instance via unregulated OTC trading, specifically CDSs), only to shift risk and further benefit from risky operations.

This tendency of some G-SIBs to exploit the general character of the rules (or lack of them in some aspects) led to an unwelcome outcome. Despite the fact that these institutions principally remained in compliance with prudential requirements, some of them found themselves on the brink of failure and needed to be rescued. At this point, the realization dawned on regulators and they started to act. From providing liquidity, through to administrative aid and the arranging of mergers to full-blown bailouts, the authorities both in the USA and in the EU did everything to save the economy by saving the ailing G-SIBs. They started stress-testing exercises in order to look at the individual levels of capital. Later, the national agencies also pursued proceedings aiming at punishing any possible

misconduct. The whole world, and especially the supervisors, understood that a G-SIBs-oriented legal regime had to be established, but that it should also include supervisory discretion allowing for more individual tailoring of the rules. They realized that, arguably, this crisis of such magnitude may not have happened had the rules been adjusted to the specific character of G-SIBs.

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3 Regulation of G-SIBs in the USA and the EU

Overly general, but fixable?

A wave of regulatory reforms was inevitable after the crisis. Some experts clearly stated that the regulatory stagnation practiced before the downturn was no longer an option. 'Markets overreact so policy needs to overreact as well', as Larry Summers famously summed it up.[1] The need for regulatory change was broadly recognized, both at the international and regional level.

The crisis taught regulators many lessons, but regarding G-SIBs two sweeping changes seemed necessary. First, rules applicable to these institutions were too general, grouping them together with other banks and not taking into account systemic aspects of their functioning. The post-crisis regulation is intended to pursue a more systemic-importance-oriented, institution-specific, individualized approach, acknowledging how different these entities are in normal times (Chapter 1) and how they adjust to general rules in various ways, with some of them ultimately contributing to financial downturns (Chapter 2). Second, in the case of failure to tailor G-SIB-oriented rules in an adequately specific manner, and because legislators drafting the rules often 'cannot see the lightning that will strike them',[2] the individualized character of such provisions has to be complemented by a significant level of supervisory discretion. Such powers should be placed at supervisors' disposal not only in reactive crisis situations, but also preventively, for instance while setting the prudential requirements. The situation where supervisors are bound to act, but do not have the tools to do so, should not be repeated (Chapter 2).

Are these two necessary improvements of the regulation of G-SIBs present in today's legal framework? Is the individual character of G-SIBs accurately mirrored in the binding provisions, or at least are the supervisors allowed to adjust the rules to an institution's specific features? In order to make such an assessment, G-SIB-oriented rules will be presented and analyzed in this chapter. A comprehensive description of this regime naturally ought to begin with the post-crisis institutional supervisory framework, which has been designed to play a major role

1 Adam Posen, Rhee Changyong, *Responding to Financial Crisis: Lessons from Asia Then, the United States and Europe Now*, Peterson Institute for International Economics, 2013, p. 142.

2 Thought by Professor Lawrence Baxter, Duke University School of Law.

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in shaping G-SIB-oriented rules. The designation process will also be described, as the special, more stringent requirements are contingent on it. Later on, analysis shall encompass those measures triggered by such identification, starting with the prudential rules concerning capital and leverage of G-SIBs, contagion-focused large exposures, resolution and Total Loss-absorbing Capacity (TLAC) linked to the threat of failure, up to the supervisory Pillar 2 framework for G-SIBs.

Importantly, legal solutions shall be presented from both international and regional perspectives. Many national regimes now include rules for systemic institutions,[3] but the analysis here will encompass legal regimes of the USA and the EU, as these are the two regions that most of the G-SIBs are incorporated in.[4]

3.1 Institutional supervisory framework

Post-crisis supervisory reform regarding G-SIBs was one of the most far-reaching, given both the supervisors' inaction before the GFC and noticeable lack of clear powers to intervene.[5] The framework for supervision of systemic entities has been amended in two main areas: institutional, by means of the creation of new authorities, described below, and material, meaning the revision of Pillar 2 powers, including the introduction of comprehensive stress tests, and general discretion added in most regulatory areas concerning G-SIBs.[6]

3.1.1 International level

Globally, there are three main actors involved in establishing a framework of standards for the international banking system: the G20, the Financial Stability Board (FSB), and the Basel Committee on Banking Supervision (BCBS). The G20, a group of 19 member countries and the EU, 'establish[ed] a new Financial Stability Board (FSB) with strengthened mandate, as a successor to the Financial Stability Forum (FSF).'[7] Its main task is to monitor and make recommendations about the global financial system. 'It [also] fosters a level playing field by encouraging coherent implementation of these policies across sectors and jurisdictions.'[8] Additionally, the FSB is a body coordinating international financial regulatory

3 James R. Barth et al., 'Systemically Important Banks (SIBs) in the Post-Crisis Era. The Global Response, and Responses Around the Globe for 135 Countries' in Allen N. Berger, Philip Molyneux, and John O. S. Wilson (eds), *The Oxford Handbook of Banking*, Oxford University Press, 2015, p. 639.

4 FSB, *2021 list of global systemically important banks (G-SIBs)*, 23 November 2021 (FSB 2021 G-SIB list).

5 See Section 2.1.3.

6 Supervisory discretion will be analyzed in the context of each regulatory area. However, for Pillar 2 and a summarizing overview of all the new discretionary powers see Section 3.7 and Table 3.6.

7 London Summit Leader's Statement, 2 April 2009, www.imf.org/external/np/sec/pr/2009/pdf/g20_040209.pdf, accessed 7 December 2021, point 15.

8 FSB, *Mandate of the FSB*, www.fsb.org/about/, accessed 7 December 2021.

undertakings on behalf of the G20. The FSB fulfils this function, as 'a first-among equals',[9] in regards to the international standard-setting bodies[10] – in particular the BCBS, but also towards other entities.[11] In the aspect of banking regulation, the BCBS's role in the international standard-setting community is particularly crucial.[12] 'Its mandate is to strengthen the regulation, supervision and practices of banks worldwide with the purpose of enhancing financial stability.'[13] During this committee's meetings 45 members (representing both central banks and banking supervisors) from 28 jurisdictions try to reach an agreement on prudential regulation for banks.

Thus, the FSB and BCBS were essentially responsible for creating a new framework that would fix the deficiencies and omissions of the previous one, also in respect to G-SIBs. In the case of the BCBS this meant creating a methodology for their designation and developing a framework of G-SIB-specific standards. The FSB has been tasked with annual assessment based on the BCBS methodology and the publishing of a G-SIBs list, on which the advisable levels of additional G-SIB surcharge and leverage ratio depend. The FSB also authored the resolution-related Key Attributes and Total Loss-absorbing Capacity (TLAC) regime.

The task the FSB and BCBS were supposed to fulfil was not easy – Charles Goodhart compared these financial regulators with Sisyphus, 'that at least knows the reasons he got condemned for, whereas most of those on the Basel Committee found themselves in the wrong place at the wrong time.'[14] As documents adopted by the Basel Committee and the FSB are not legally binding, member states are supposed to implement them in their national legal regimes. Consequently, both the FSB and BCBS as international bodies do not have direct supervisory powers, but can only report on the implementation of their standards.[15] Even if such reports include recommendations, they are normally relatively vague. Despite this limited real power and non-binding character of their acts, the FSB and BCBS have a strong international position and national authorities tend to follow the FSB's designation decisions,[16] or copy the BCBS's prudential standards.

9 Barth et al., 'Systemically Important Banks', p. 624.

10 For more information on these institutions see Tim Büthe, Walter Mattli 'International Standards and Standard-Setting Bodies' in David Coen, Wyn Grant and Graham Wilson (eds), *The Oxford Handbook of Business and Government*, Oxford University Press, 2010.

11 For instance Committee on the Global Financial System (CGFS) and the International Organization of Securities Commissions (IOSCO).

12 Michael Barr, Geoffrey Miller, 'Global administrative law: A view from Basel', *The European Journal of International Law,* 2006, 17/1.

13 Basel Committee Charter, www.bis.org/bcbs/charter.htm, accessed 7 December 2021.

14 Charles Goodhart, *Financial Stability in Practice: Towards an Uncertain Future*, Edward Elgar Publishing, 2012, p. 55.

15 See for instance FSB, 'Evaluation of the effects of too-big-to-fail reforms. Final Report', 31 March 2021; BCBS, Basel III Monitoring Report, September 2021.

16 For more on designation and this tendency to abide by the FSB's list, see Section 3.2.

3.1.2 Regional level

Amendments to the institutional framework of regulators were also introduced in the USA and in the EU, however on a totally different scale. In the USA the change was not too profound, whereas in the EU a whole new institutional network was created.

3.1.2.1 USA

Supervisors before the crisis did not act preventively for many reasons, one of them being a lack of formal powers to do so.[17] When worst came to worst, they ended up fighting the crisis 'with duct tape and baling wire'.[18] That is why the supervisory reform in the USA focused on competences and the ability of supervisors to act rather than on sweeping institutional changes. Actually, in the context of supervision of systemic entities there were only three novelties. First, the Office of Thrift Supervision, supervising savings and loans institutions, ceased to exist. Second, the Financial Stability Oversight Council (FSOC) was created. Its main tasks include identifying threats to financial stability, facilitating of information sharing, and the designation of non-bank systemically important financial institutions (SIFIs) and of systemic financial market utilities. It does not have any direct supervisory influence on US G-SIBs.[19] Additionally, the FSOC is currently at a crossroads. The non-bank SIFI label has been dropped in the case of all four originally designated entities.[20] Also, the FSOC is set to implement a more activities-based rather than an institutions-based approach – a move that was broadly perceived as the Trump administration's attempt to prevent any future designations.[21] The last institutional change most directly concerning G-SIBs was the move to create the Large Institution Supervision Coordinating Committee (LISCC), a Federal Reserve System-wide committee providing strategic support and incorporating the aspect of systemic risk into the Fed's supervisory program.[22] The LISCC supervisory program provides also more individualized

17 See Section 2.1.3.

18 Ben Bernanke, Timothy Geithner, Henry Paulson, *Firefighting: The Financial Crisis and Its Lessons*, Penguin Books, 2019, p. 54.

19 For more see US Department of Treasury, 'About FSOC', https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/fsoc/about-fsoc, accessed 7 December 2021. In its actions FSOC can rely on the Office of Financial Research (OFR), also an agency created post-crisis, conducting comprehensive research tasks for other supervisors.

20 AIG, MetLife, Prudential, and GE Capital. See John Heltman, 'Prudential, the Last Nonbank SIFI, Sheds the Label', *American Banker*, 17 October 2018.

21 Steven Lofchie, 'United States: FSOC Approves Activities-Based Approach For Combating Systemic Risks', *Mondaq*, 12 December 2019. For a critique of this approach see Jeffrey Gordon, '"Dynamic Precaution" in Maintaining Financial Stability. The Importance of FSOC', in Sharyn O'Halloran, Thomas Groll (eds), *After the Crash: Financial Crises and Regulatory Responses*, Columbia University Press, 2019.

22 Federal Reserve, 'Large Institution Supervision Coordinating Committee', www.federalreserve.gov/supervisionreg/large-institution-supervision.htm, accessed 7 December 2021.

approach to G-SIB supervision. Its Dedicated Supervisory Teams conduct day-to-day supervision and its portfolio encompasses all eight US G-SIBs.[23]

As a result, apart from orienting the regime more towards financial stability, not much has changed in the institutional set-up for G-SIBs since the crisis. The main flaw of the framework persisted – US G-SIBs are supervised and regulated by several agencies that are expected to cooperate. Due to these banks' complex natures and the variety of financial services they provide, most universally oriented institutions will be subject to the oversight of up to five agencies – the Federal Reserve Board (the Fed), the Office of the Comptroller of the Currency (OCC), the Securities and Exchange Commission (SEC), the Federal Deposit Insurance Corporation (FDIC) and the Commodity Futures Trading Commission (CFTC).[24] A good example is JP Morgan's London Whale scandal, which was investigated by five different agencies, all of which separately determined monetary sanctions.[25] All three financial crisis 'firefighters' – Ben Bernanke, Henry Paulson, and Tim Geithner – recommended consolidation of the US supervisory landscape.[26] The detailed proposal advocated a merger of the SEC and CFTC, which both supervise and regulate derivatives. Supervisory competences are divided between these two agencies only by the type of derivative (security or commodity). However, this move seems impossible, given the fact that two separate Congress committees oversee them and neither of them wants to give up their influence on Wall Street, support of which is crucial for their re-election.[27] In any event, a fragmentation of the supervisory landscape can be useful in the context of combating regulatory capture.[28]

Ultimately, as the following analysis will demonstrate in more detail, it is important to note that supervisory tasks when it comes to G-SIBs at their consolidated level are mostly in the hands of the Federal Reserve Board and the FDIC. These are the two agencies whose role in shaping G-SIB-oriented rules will be most crucial.

3.1.2.2 EU

In contrast to the USA, the EU institutional supervisory set-up changed profoundly in the aftermath of the crisis. In the context of EU G-SIBs, three changes

23 Ibid.

24 For more on the complex system see John Armour et al., *The Principles of Financial Regulation*, Oxford University Press, 2016, p. 599; *The Economist*, 'The Dodd-Frank Act – Too Big Not To Fail', 18 February 2012.

25 Stephen Cutler, 'How To Regulate in Times of Crisis', in Sharyn O'Halloran, Thomas Groll (eds), *After the Crash: Financial Crises and Regulatory Responses*, Columbia University Press, 2019, p. 259; Chairman Mary Shapiro of the SEC, Testimony on 'Examining Bank Supervision and Risk Management in Light of JP Morgan Chase's Trading Loss', 19 June 2012, www.sec.gov/news/testimony/2012-ts061912mlshtm, accessed 7 December 2021.

26 Bernanke, Geithner, Paulson, *Firefighting*, p. 115.

27 For more see Barney Frank's opinions in John Coffee Jr. et al., 'Roundtable: It's Not Too Much or Too Little Regulation; It's Getting It Right', in Sharyn O'Halloran, Thomas Groll (eds), *After the Crash: Financial Crises and Regulatory Responses*, Columbia University Press, 2019, p. 305.

28 See Section 4.2.3.1.

are of greatest relevance. First, the supervision of EU G-SIBs was centralized in the hands of the ECB, specifically the Single Supervisory Mechanism (SSM). The SSM was established as one of three pillars of the EU Banking Union, which unites eurozone Member States and other Member States willing to participate.[29] It encompasses the ECB in its supervisory capacity and the national competent authorities (NCAs) of these Member States. Adding the ECB to this landscape required a division of competences between it and the NCAs. For this purpose, the SSM Regulation established a supervision-oriented identification framework grouping EU banking entities into significant institutions (SIs) and less significant institutions (LSIs). The details of this designation will be discussed in Section 3.2.2.2. Most importantly for the current analysis is the fact that the ECB serves as the primary supervisor of all of the EU G-SIBs. However, it is much more complex than that. Within this supervisory solution also cross-border cooperation and the individual character of G-SIBs are taken into account – each G-SIB[30] is subject to ongoing oversight of a Joint Supervisory Team (JST) formed by ECB staff and representatives of NCAs from countries where this banking group is based or has its subsidiaries or significant branches.[31] Also in the matter of setting macroprudential requirements, including the global systemically important institution (G-SII) buffer, the power resides with national authorities.

The second institutional novelty reflected the global movement to create bodies focusing on financial stability and macroprudential aspects. The European Systemic Risk Board (ESRB) was created with the aim of conducting macroprudential oversight in the entire EU.[32] It is intended to identify symptoms of systemic risk increases in the EU financial sector and, if necessary, to issue warnings and recommendations. However, despite its mandate being closely linked to the functioning of the G-SIBs, the ESRB does not have any supervisory powers over them. Even its recommendations and warnings cannot be addressed to individual institutions.[33] The information the ESRB receives from other authorities must not hint at any individual financial institution – it has to be presented as aggregate.[34] Thus, the ESRB's powers do not have the potential to actually shape G-SIBs' operations. This conclusion is also in line with the main criticism of the ESRB, which is commonly perceived as more of a research center than a supervisory authority.

This is different in the case of the third G-SIB-related supervisory institution created post-crisis. The European Banking Authority (EBA) constitutes a part of

29 Art. 7 Council Regulation (EU) No 1024/2013, OJ L 287, 29 October 2013 (SSM Regulation).

30 Actually each SI.

31 ECB, Joint Supervisory Teams, www.bankingsupervision.europa.eu/banking/approach/jst/html/index.en.html, accessed 7 December 2021.

32 See Regulation (EU) No 1092/2010, OJ L 331, 15 December 2010 (ESRB Regulation).

33 Art. 16(2) ESRB Regulation.

34 Art. 15(3) ESRB Regulation.

the European System of Financial Supervision (ESFS),[35] and its actions apply to the banking entities in the whole of the EU, in contrast to the SSM's powers focused on the eurozone. Similarly to the ESRB, it does not have direct supervisory competences, but it is still crucial in the context of G-SIBs. Apart from its role in drafting identification methodology, gathering designation reports from national supervisors and publishing them on its website,[36] it plays a relevant role in the process of EU-wide stress testing.[37]

3.2 Designation

Arguably the most important realization after the GFC referred to the fact that some banking institutions turned out to be more threatening to the economy than others due to their systemic importance. The concept of G-SIBs touches upon the issues of contagion, systemic risk, too big to fail, as well as cross-border resolution and supervision. Hence, the identification of G-SIBs constituted the most elementary step not only towards creating the framework taking into account G-SIBs' 'systemic-ness', but also towards establishing the whole post-crisis regulatory system.

3.2.1 International level

Soon after the crisis, the BCBS was tasked[38] with drafting the methodology to designate the most systemically important banks in the world. The first version of these assessment rules was published in 2011.[39] The official term 'G-SIB' was coined in this document and has been used widely ever since. The BCBS methodology was updated in 2013 and in 2018.[40] In this contribution, the latest variant of the assessment standards will be analyzed.[41]

35 Encompassing also ESRB, European Insurance and Occupational Pensions Authority (EIOPA), and European Securities and Markets Authority (ESMA).

36 See Section 3.2.2.2.

37 See Section 3.7.2.2.

38 For more history on the 'SIFI agenda' during G20 summits see Barth et al., 'Systemically Important Banks', pp. 625–626.

39 BCBS, 'Global systemically important banks: Assessment methodology and the additional loss absorbency requirement', 4 November 2011.

40 BCBS, Global systemically important banks: updated assessment methodology and the higher loss absorbency requirement, 3 July 2013; BCBS, Global systemically important banks: revised assessment methodology and the higher loss absorbency requirement, 5 July 2018 (BCBS G-SIB Methodology 2018).

41 In this thesis, I shall refer to this latest version of the methodology (further as BCBS G-SIB Methodology 2018). This variant was adopted already in July 2018, and it was supposed to take effect in 2021. See Annex 3 BCBS G-SIB Methodology 2018. However, due to the outbreak of the coronavirus pandemic and the strain it put on banks and governments, BCBS announced the new methodology should be officially implemented as of 2022 (BCBS, 'Basel Committee publishes new details on global systemically important banks', Press Release, 11 November 2020, www.bis.org/press/p201111.htm, accessed 8 December 2021). After a thorough analysis of both versions

How does the annual process of G-SIB designation function? First, the sample of banks is established. It comprises 75 of the largest global banks (identified by the BCBS on the basis of the year-end Basel III leverage exposure measure[42]), G-SIBs designated in the previous year, and banks that the supervisors choose to include according to their supervisory discretion. These institutions submit the year-end data in five areas. Before moving to the analysis of the detailed indicators, one important aspect is worth mentioning. The requirement to transfer year-end data opened a possibility for window-dressing. A study published by ECB staff[43] has shown that every last quarter, euro area G-SIBs lower both their risk score and the overall size of total assets, so that the data later submitted for the G-SIB designation procedure suggests the institution is less risky/smaller. This tendency has also been recently confirmed regarding US G-SIBs in the contribution published by the Federal Reserve.[44] Thus, the collection of year-end data already constitutes the first flaw of this methodology, as it casts doubt on the credibility of the results.

The designation framework follows an indicator-based approach distinguishing five features: size, interconnectedness, substitutability, global/cross-jurisdictional activity, and complexity.[45] All of them are measured on a consolidated basis. Each of these categories has an equal weight of 20%. Also, the final result for each feature is assessed against the whole sample, namely 'the score for a particular indicator is calculated by dividing the individual bank amount by the aggregate amount for the indicator summed across all banks in the sample.'[46]

Size is the only indicator based solely on one factor – it is defined by the Basel III leverage exposure measure, the same as the one used in the sample determination. Thus, it encompasses all exposures of a given institution, including off-balance sheet items. Also, netting of loans and deposits is not allowed. This measure is very comprehensive with regards to activities behind the encompassed

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and regional implementation efforts, I came to the conclusion that analysis of the newest version is justified, regardless of the postponement, as it has been broadly implemented anyway. It has been also integrated in the consolidated Basel Framework. See BCBS, 'The Basel Framework', 2021.

42 Leverage ratio will be further discussed in Section 3.4, but the Basel III leverage exposure measure is defined as a 'sum of the following exposures: (a) on-balance sheet exposures; (b) derivative exposures; (c) securities financing transaction (SFT) exposures; and (d) off-balance sheet (OBS) items.' See BCBS, 'Basel III leverage ratio framework and disclosure requirements', January 2014, point 14.

43 Markus Behn et al., 'Does the G-SIB Framework Incentivise Window-Dressing Behaviour? Evidence of G-SIBs and Reporting Banks', *ECB Macroprudential Bulletin*, 2 October 2018, www.ecb.europa.eu/pub/financial-stability/macroprudential-bulletin/html/ecb.mpbu201810_02.en.html#toc1, accessed 7 December 2021.

44 Even though the study refers directly to surcharge designation (see Section 3.3.2.1), it analyses data also used in the G-SIB designation, which makes it equally relevant for the accuracy of this process. See Jared Berry, Akber Khan, Marcelo Rezende, 'How Do U.S. Global Systemically Important Banks Lower Their Capital Surcharges?', *FEDS Notes. Washington: Board of Governors of the Federal Reserve System*, 31 January 2020..

45 All indicators and sub-indicators along with their weightings are summarized in Table 3.1.

46 BCBS G-SIB Methodology 2018, point 17.

items. After the BCBS realized that exposure arising from insurance subsidiaries is excluded both from the G-SIB assessment and from the then-binding methodology to designate global systemically important insurers created by the International Association of Insurance Supervisors (IAIS),[47] it included this asset group in the G-SIB size calculation (as well as in interconnectedness and complexity categories).[48] What could be surprising, given the general trust that the BCBS puts in the risk-weighted assets (RWAs) in the context of other rules, is the lack of this aspect when it comes to the determination of the size of G-SIBs. Additionally, one could wonder why, after so many tangible signs that size is not such a relevant feature when it comes to systemic failure,[49] still one fifth of the total 'systemic importance' score is determined by it.

In contrast to size, interconnectedness relies on several sub-indicators. It is calculated as a weighted average of intra-financial system assets, intra-financial system liabilities, and securities outstanding. In other words, it encompasses all relations of a given bank with the rest of the global financial system. However, it shows all the values as a sum, without granular information about the individual entities that the assessed institution is exposed to. Such a measure acknowledges only that a bank constitutes part of a network but does not show what place in this network it occupies.[50] Additionally, such an approach ignores the broadly recognized fact that many interdependencies between financial institutions are indirect, whether through implicit guarantees, loss of trust, or exposures to the same non-financial industry.[51] This is especially striking as this indicator should reflect the threat of contagion a bank is posing. It seems overly simplified to live up to these expectations.

Cross-jurisdictional activity is expressed very simply – by the number of cross-jurisdictional claims and liabilities, which indicates the scale of potential impact that the assessed bank could exert outside its home country. This measure shows total international exposure, without detailed data on which foreign jurisdictions dominate the global activities of a given institution. This approach seems to be blunt and simplified. It is also criticized for its potential to discourage globalization efforts and the expansion of the biggest banks in emerging economies.[52]

The fourth indicator contributing to the assessment of systemic importance – substitutability/financial institution infrastructure – refers to two sides of the

47 IAIS, Global systemically important insurers: Updated assessment methodology, 16 June 2016. Importantly, in 2017 FSB and IAIS made the decision to give up on the designation of these insurance-focused entities. See FSB, FSB statement on identification of global systemically important insurers, 21 November 2017.

48 BCBS G-SIB Methodology 2018, point 19.

49 See Section 2.2.1.

50 Luca Enriques, Alessandro Romano, Thom Wetzer, 'Network-sensitive financial regulation', *The Journal of Corporation Law*, 2020, 45/2.

51 Xavier Freixas, Luc Laeven, José-Luis Peydró, 'A Primer on Systemic Risk', in Xavier Freixas, José-Luis Peydró, Luc Laeven (eds), *Systemic Risk, Crises, and Macroprudential Regulation*, MIT Press, 2015.

52 Lukas Becker, 'Banks' G-Sibs criticism summarised', *International Financial Law Review*, 2011.

same coin. The lack of substitutability increases the systemic relevance of a given entity, just as the provision of financial institution infrastructure in the particular field does. This feature is calculated using the following sub-indicators: assets under custody, payments activity, underwritten transactions in debt and equity markets, and trading volume. Logically, these business lines could be perceived as those that constitute sources of systemic risk, if dominated by one bank only. It is certainly the case regarding assets under custody. As explained in Chapter 1, the biggest bank custodians are BNY Mellon and State Street, two highly specialized entities that do not engage in many other types of operations. It is common knowledge that their systemic importance stems mainly from the substitutability feature, and rightly so. To some extent substitutability takes into account the premise that G-SIBs are different and some specialize, rather than operate in all areas of banking and finance. Consequently, the fact that the BCBS established a cap of 500 points for this indicator defeats the purpose of such a measure.[53] The argument that it had too much impact on G-SIB designation seems to be missing the point of the substitutability feature. If a bank really is so irreplaceable (as measured against all the other banks in the sample!), then it certainly deserves the score it receives. It is also difficult to understand why trading volume (added to the methodology by its last revision) and underwritten transactions in debt in equity both have lower weights than custody and payment services. The argument that trading represents secondary market engagement and underwriting shows involvement in primary market, and thus these two can be seen as a whole of capital market activities, is not too convincing. Even though some banks, like JP Morgan, engage extensively in both aspects, some operate predominantly in only one of those fields (like Credit Suisse as underwriter). Including the trading volume among sub-indicators for substitutability is also criticized, as it somehow double-counts trading already taken into account in the complexity measure.

Indeed, the complexity indicator is based on the notional amount of OTC derivatives, level 3 assets, and trading and available-for-sale securities. It clearly repeats the assessment of trading involvement, which could undermine the accuracy of the final results. For instance, banks heavily engaged in trading, such as JP Morgan or Goldman Sachs, will see their scores increase disproportionately. Also, the BCBS methodology expressly links systemic impact to complexity but understood broadly as business, structural, and operational complexity. Unfortunately, none of the sub-indicators touches upon the G-SIBs' internal structural division (capital flows between subsidiaries, branches, and holdings) or business model. They only hint at the complexity of the balance sheets, missing the real labyrinth of operations and entities these institutions constitute (Table 3.1).

After banks submit the data regarding each of these indicators (sub-indicators), the final score is calculated. The procedure works as follows.[54] First, the score

53 BCBS G-SIB Methodology 2018, point 18.
54 Ibid, point 17.

Table 3.1 Indicators and sub-indicators from the BCBS G-SIB Methodology 2018

Indicators	*Sub-indicators*	*Weighting*
Size	Total exposure as defined in Basel III leverage ratio	20%
Interconnectedness	Intra-financial system assets	6.67%
	Intra-financial system liabilities	6.67%
	Securities outstanding	6.67%
Cross-jurisdictional activity	Cross-jurisdictional liabilities	10%
	Cross-jurisdictional claims	10%
Substitutability/ financial institution infrastructure	Assets under custody	6.67%
	Payments activity	6.67%
	Underwritten transactions in debt and equity markets	3.33%
	Trading volume	3.33%
Complexity	Notional amount of OTC derivatives	6.67%
	Level 3 assets	6.67%
	Trading and available-for-sale securities	6.67%

for a given sub-indicator is divided by the overall values of all banks in the sample. To translate the result of this dividing into a basis points, it is multiplied by 10,000. Then, the weighted average is counted to create an overall score for a given indicator. The final score is a result of a simple average of the five categories/indicators. A bank is designated as a G-SIB if its result is equal to or higher than 130 points.

The BCBS also introduced the element that is intended to mitigate the naturally arbitrary character of an indicator-based approach. Namely, it vested powers in supervisory authorities. National supervisors can challenge results of the score measurement under several conditions: it should take place only in exceptional cases, be based on the concern of the impact (not probability) of failure of a bank,[55] and should be pursued only if such change would have a material impact on the treatment of a given bank.[56] Also the supervisors cannot make their decision based on the resolution framework in their jurisdiction (its credibility or lack of it), but they shall present 'well documented and verifiable quantitative as well as qualitative information'.[57] As an example of 'qualitative information', the BCBS gives a major restructuring of a bank's operations, but one could also imagine a major scandal playing a role, for instance one like with Wells Fargo's fake accounts, showing that this bank can constitute a much bigger systemic threat than is suggested in official reports. After national authorities propose the adjustment, the BCBS develops recommendations for the FSB, and, finally, the FSB with national authorities makes the final decision.[58]

55 Ibid, point 30.
56 Ibid, point 35.
57 Ibid, point 30.
58 Ibid, point 34.

Additionally, the BCBS also formulates 'ancillary indicators'[59] that are intended to support the supervisory judgment process. Somehow these features referred to as 'ancillary' seem like they are intended to address the criticism aimed at the omissions of the main indicators. Among them, one can find the retail funding measure absent (along with short-term funding) from the scoring part, despite the role funding played during the crisis and how it differed between the G-SIBs. The Office of Financial Research (OFR), a US research agency focusing on systemic risk, provides data on short-term wholesale funding, and one can see that the scores would lead to a reshuffling of the systemic importance ranking. The reliance on this type of funding in relation to average RWAs amounts to 76% for Morgan Stanley and 53% for Goldman Sachs, but only 13% for Wells Fargo and 36% for JP Morgan Chase.[60] JP Morgan is considered to be most systemically important according to the FSB, whereas Morgan Stanley is in the lowest bucket. Adding short-term wholesale funding to the Basel/FSB methodology could be crucial for future designations. Ancillary indicators also include foreign net revenue and number of jurisdictions, factors that allow much more insight into the institution's cross-jurisdictional potential impact than mere foreign claims and liabilities. In order to avoid national/regional bias in the supervisory decisions, challenges to indicator-based scores have to be scrutinized by the Financial Stability Board, national authorities, and the BCBS.

After the final decisions are made, the FSB publishes the list of G-SIBs. Usually this takes place in late November. Starting with the second edition of the list, the FSB introduced the bucketing approach. G-SIBs are allocated in buckets according to their systemic importance as reflected by the score from the indicator-based calculation. Placement in a higher bucket translates into a higher loss absorbency requirement[61] for a given G-SIBs – from 1%[62] for the first one, to 3.5% in the fifth bucket. The top bucket is supposed to remain empty. The BCBS openly stresses that should one of the banks reach that threshold, a new bucket will be added to 'maintain incentives for banks to avoid becoming more systemically important'.[63]

The bucketing approach revealed flaws in the methodology that without it could have gone unnoticed. There are two important and worrying observations in this matter. The first concern refers to the major generalization tendency that this list represents. As banks within each bucket are listed alphabetically, so no ranking is provided, and they are supposed to hold the same additional buffer, it could be concluded that they are equally systemically risky. Are they, though? Without going into details of balance sheets and annual reports (see Chapter 1),

59 BCBS, 'Instructions for the end-2020 G-SIB assessment exercise', January 2021, p. 22.

60 See last quarter of 2020 (as the time when the data for 2021 designation as G-SIB is gathered) in OFR, 'Bank Systemic Risk Monitor'. Short-term Wholesale Funding, www.financialresearch.gov/bank-systemic-risk-monitor/, accessed 13 December 2021.

61 Discussed in Section 3.3.

62 CET1 as a percentage of RWAs.

63 BCBS G-SIB Methodology 2018, point 47.

it is clear to almost everyone that State Street does not create the same risks as Morgan Stanley or ING Bank, and yet they occupy the same bucket. The BCBS published a dashboard with individual scores of all G-SIBs designated in 2021, and the differences between them are telling.[64] In the second bucket, for example, Bank of America with 291 points has a score almost 60 basis points higher than Goldman Sachs (232), yet they are considered equally risky. Lower difference in score between BNP Paribas and Bank of America results in distinct systemic importance levels. In the lower bucket meanwhile, with a difference of just 16 points, Wells Fargo is considered as systemically important as BNY Mellon. Further, the 'least' systemically important G-SIB – Groupe BPCE – is placed in the same bucket as Morgan Stanley, with as many as 93 basis points difference between them. The second issue is visible when all lists published so far are compared. Apart from some minor reshuffling in the upper buckets, the list remains relatively static. JP Morgan was in the fourth (highest occupied) bucket for nine years.[65] Citigroup is 'a regular' of the third bucket. Santander, Unicredit, and State Street are consistently in the first, lowest bucket. Goldman Sachs occupied the second bucket for eight years straight.[66] According to the goal of the methodology, this should mean that their systemic importance has not changed much. It seems impossible, given the constant transformation these entities are undergoing and their involvement with new firms and products, from JP Morgan's engagement in healthcare spending through its acquisition of InstaMed[67] to Goldman Sachs slowly turning towards retail with its Marcus by Goldman project.[68]

Certainly, the methodology does not adequately account for the individual character of each G-SIB.[69] It seems to fish out the most relevant institutions globally, or at least it provides a legal, material foundation for the identification of institutions that would probably also be selected as G-SIBs under a common premise 'you know it when you see it'. But the way the list groups them up shows a lack of understanding of their diversity. This is especially disappointing as the BCBS acknowledges the individualism of G-SIBs in the methodology: 'Banks vary widely in their structures and activities, and therefore in the nature and degree of risks they pose to the international financial system.'[70] As a solution

64 BCBS, 'G-SIB Dashboard', www.bis.org/bcbs/gsib/, accessed 10 December 2021.

65 Only during the 2020 designation exercise, JP managed to decrease the score (by 16 points) and landed in the lower bucket.

66 As in case of JP, in 2020 it dropped to the top of first bucket, but it came back to its 'regular' bucket in 2021.

67 Hugh Son, 'JP Morgan Buys Health-Care Payments Firm InstaMed in the Bank's Biggest Acquisition since the Financial Crisis', *CNBC*, 17 May 2019.

68 See Section 1.3.1.1.

69 There are also other critical voices, for instance naming many other methods that could be used to assess the systemic importance. See Małgorzata Iwanicz-Drozdowska, 'Global systemically important banks – how to identify and regulate them?', *Journal of Economics and Management*, 2014, 18.

70 BCBS G-SIB Methodology 2018, point 13.

for the clash of G-SIBs' individualism, and arbitrary indicators, it offers that 'the quantitative indicator-based approach can be supplemented with qualitative information that is incorporated through a framework for supervisory judgment.'[71] In other words, the BCBS admits that the indicator-based methodology does not adequately mirror specific risks G-SIBs pose to the system, so it transfers the burden of such final assessment to the supervisors. The abovementioned supervisory discretion granted in this context ought to be perceived as a positive aspect of the framework.

3.2.2 Regional level

Basel standards are non-binding per se, and they require implementation at the national or regional level. In the case of designation of G-SIBs, both American and EU regimes closely followed solutions included in the Basel methodology. Also, if for some reason the results of national designation and of BCBS methodology vary, a tendency to adjust the national assessment can be observed. This was visible on the example of Nordea in 2018. In June 2018 the Finnish Financial Supervisory Authority (FIN-FSA) designated Nordea as globally systemically important according to EU standards.[72] However, when the Financial Stability Board published its annual list in November, and Nordea was not included in the publication, FIN-FSA overturned its previous designation.[73]

3.2.2.1 USA

In the USA the designation of G-SIBs is regulated at two levels. First, the Dodd-Frank Act, the major post-crisis reform bill enacted by Congress, tasks the Federal Reserve Board of Governors with establishing enhanced prudential standards (EPS) for non-banks supervised by it, as well as for bank holding companies (BHCs) with total assets of $250 billion or more (the so-called systemically important financial institution (SIFI) designation).[74] Then the Federal Reserve Board adopts federal regulations to fulfil this task.[75] The whole system follows the 'tiering approach', so the bigger the bank (as assessed by its total consolidated assets), the more stringent the rules that apply to it. Currently the thresholds are $100 billion, $250 billion, and $700 billion.[76] However, what is sometimes

71 Ibid.

72 See Section 3.2.2.2.

73 FIN-FSA Board, 'Decision on Nordea's identification as a G-SII', Press Release, 20 December 2018, www.finanssivalvonta.fi/globalassets/en/publications/press-releases/2018/mv_gsii_201218/macroprudential_decision_gsii.pdf, accessed 10 December 2021.

74 12 US Code § 5365 (a)(1).

75 Title 12 CFR.

76 Banks could also fall into the two upper size categories if they have significant cross-jurisdictional activity or short-term wholesale funding, off-balance sheet exposures, and non-bank assets. See Federal Register, Volume 84, Issue 212, 1 November 2019 (84 FR 59032).

misleadingly conveyed by the press and some scholars,[77] exceeding $250 billion or $700 billion in assets does not automatically make a BHC a US G-SIB. In fact, banks bigger than $250 billion must conduct a designation exercise to assess whether they constitute a G-SIB.[78] The calculation procedure[79] is almost identical to the one used by the BCBS, only the substitutability cap is lower – instead of 500, it is set at 100 basis points, which could be perceived as an attempt to aid the two biggest custodians in the world, which happen to be American (State Street and BNY Mellon). The cut-off score for a US G-SIB remains the same as with the FSB designation. Also indicators and their weights are exactly the same. G-SIB designation in the US results in an obligation to hold an additional G-SIB capital surcharge[80] and to meet the Total Loss-absorbing Capacity threshold[81], the Enhanced Supplementary Leverage Ratio,[82] and some supervisory and resolution requirements.[83]

The federal regulation leaves broad discretion to the Federal Reserve Board by allowing it to apply the whole identification subpart to any institution regulated by it 'based on the institution's capital structure, size, level of complexity, risk profile, scope of operations, or financial condition'.[84] Consequently, it looks like the Federal Reserve has the power to fix some omissions of the G-SIB methodology. Even though it cannot officially designate an institution as a G-SIB, it can decide to apply the G-SIB-specific rules to it. Also, apart from mistakes copied from the Basel methodology, the American implementation of the designation framework could be seen as a success.[85] A tiering approach has evolved from a blunt and arbitrary size-based measure.

3.2.2.2 EU

In the EU, there are two methods of designating systemic entities, each serving a different purpose. EU-wide designation of G-SIBs based on the provisions of the Capital Requirements Directive (CRD)[86] and the Capital Requirements

77 Some scholars misleadingly treat Category II (entities over $700 billion) as Category I (depending on method 1 score); for instance see Kobi Kastiel, 'US G-SIB Leverage Surcharge and Basel III Leverage Ratio', *Harvard Law School Forum on Corporate Governance and Financial Regulation*, 28 April 2014.

78 Along with entities formerly designated as G-SIBs. 12 CFR § 217.400 and Federal Reserve Board, 84 FR 59032, footnote 58.

79 12 CFR § 217.404.

80 Section 3.3.2.1.

81 Section 3.6.2.1.

82 Section 3.4.2.1.

83 Section 3.6.2.1 and Section 3.7.2.1.

84 12 CFR § 217.400 (c)(1).

85 Daniel Tarullo, 'Financial regulation: Still unsettled a decade after the crisis', *Journal of Economic Perspectives*, 2019, 33/1, p. 64.

86 Directive 2013/36/EU, OJ L 176, 27 June 2013. See also the latest amendment Directive (EU) 2019/878, OJ L 150, 7 June 2019. The Banking Package of 2021 proposed by the EC in October

Regulation (CRR),[87] along with its implementing Commission Regulations[88] and guidelines of the European Banking Authority (EBA),[89] constitutes a basis for the application of most material G-SIB-specific rules in the EU. The second, supervision-oriented procedure of designation of less significant institutions (LSIs) and significant institutions (SIs) is encompassed by the Banking Union (BU) regime and aims at identifying the competent supervisory authority for each credit institution based in the BU, which is crucial for the exercise of supervisory discretion.

Starting with the materially oriented designation, G-SIBs in the EU function under the term of global systemically important institutions (G-SIIs).[90] Article 131 of the CRD describes elementary aspects of the G-SII designation framework. Firstly, these entities shall be designated by the competent or designated authority, so actually national supervisors are responsible for the results of this process.[91] G-SIIs have to be an EU parent institution, an EU parent holding company, or an EU parent mixed financial holding company or institution, and they cannot be subsidiaries of them. All EU institutions that fulfil this legal form requirement and whose leverage ratio exposure exceeds €200 billion[92] should annually submit data on prescribed systemic importance indicators.

Importantly, the indicators utilized for this designation are exactly the same ones as in the BCBS methodology: the size of the group, the interconnectedness of the group with the financial system, the substitutability of the services or of the financial infrastructure provided by the group, the complexity of the group, and the cross-border activity of the group.[93] As stressed in this CRD provision, the last one normally encompasses both operations between Member States, and between Member States and a third country.[94] The sub-indicators used within each category are also identical to those in the BCBS methodology.[95] The submitted data is then passed on by the national authorities to the EBA, which publishes them on its website.[96] It should ensure 'that the indicator values are identical to the

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2021 is not taken into account as it is processed by European Parliament and Council as of 10 December 2021.

87 Regulation (EU) No 575/2013, OJ L 176, 27 June 2013. See also the latest amendment Regulation (EU) 2019/876, OJ L 150, 7 June 2019.

88 Commission Implementing Regulation (EU) No 1030/2014, OJ L 284, 30 September 2014 (ComReg 1030/2014); Commission Delegated Regulation (EU) No 1222/2014, OJ L 330, 15 November 2014 (ComReg 1222/2014).

89 EBA, 'Revised Guidelines on the specification and disclosure of systemic importance indicators', 4 November 2020.

90 For a comprehensive overview of the terminology maze concerning systemically important entities see Table 3.5.

91 For competent authority see Art. 4(1)(40) CRR. For designated authority see Art. 2(7) SSM Regulation. More about supervision of G-SIBs in Sections 3.1 and 3.7.

92 EBA, 'Revised Guidelines', p. 9.

93 Art. 131(2) CRD.

94 Art. 131(2)(e) CRD.

95 See Annex ComReg 1030/2014; Art. 6 ComReg 1222/2014.

96 EBA, 'Global Systemically Important Institutions (G-SIIs). Banks individual templates', 2021.

ones submitted to the Basel Committee on Banking Supervision',[97] which clearly shows that the EU framework aims at results identical to those presented in the FSB list. Cut-off scores, as well as substitutability cap and bucket thresholds, are also set at the same levels as in the Basel method. Consequently, the list of G-SIIs mirrors the EU-based institutions included in the FSB G-SIB list.

Again, similarly to the BCBS framework, competent or designated national authorities can reallocate a G-SII from a lower bucket to a higher one, or designate an institution as a G-SII, even though it did not meet the cut-off threshold.[98] Recent amendments[99] have also introduced an option to move a G-SII from a higher bucket to a lower one. Such a decision can be based on an 'additional overall score' that is calculated using the same indicators except the cross-border activity, which in this case excludes activities across Member States participating in the Banking Union (eurozone for now).[100] This opportunity for supervisors to move a G-SII down the list is supposed to 'reflect the major institutional advances in terms of banking resolution made in the Banking Union'.[101]

The supervisory judgment should be exercised on the basis of a negative impact of a given entity's failure on the global financial market and global economy.[102] For that purpose the EBA defines ancillary indicators that to a significant extent resemble those named by the BCBS. However, there is one important difference. EBA indicators include the wholesale funding dependence ratio, a measure of non-retail funding over total liabilities.[103] Again, it stresses the lack of a comprehensive funding assessment in the indicator-based approach.

In the case of the supervision-oriented designation method, the assessment is conducted on the basis of size, importance for the economy of the Union or any participating Member State, and the significance of cross-border activities.[104] There are also detailed criteria – an institution is automatically considered an SI if its assets exceed €30 billion, or the ratio of its total assets exceeds 20% of the GDP of the Member State of establishment (unless its total asset value is lower than €5 billion), or if it received financial assistance from two EU post-crisis facilities.[105] As a principle, the ECB supervises SIs, and NCAs are responsible for LSIs. These vague and relatively broad criteria allow many banks to be considered SIs, which makes this status much more diluted than in the case of G-SIIs.

97 Arti. 3(2) ComReg 1222/2014.
98 Art. 131(10) CRD.
99 Art. 1(47)(b) and (h) Directive (EU) 2019/878.
100 Art. 131(2a) in connection with Art. 131(10)(c) CRD.
101 ESRB, 'A Review of Macroprudential Policy in the EU in 2018 / April 2019. Special Feature C: Upcoming changes to the macroprudential provisions in EU banking legislation', www.esrb.europa.eu/pub/pdf/reports/esrb.report190430_reviewofmacroprudentialpolicy_sfc~3d45506076.en.pdf, accessed 7 December 2021, p. 93.
102 Art. 5(4)(5) ComReg 1222/2014.
103 EBA, 'Revised Guidelines', p. 17.
104 Art. 6 (4) SSM Regulation.
105 Ibid.

In terms of discretion, the ECB can decide to exercise authority[106] over a chosen institution, so it has room for maneuver in this aspect. However, this competence does not change the situation of EU G-SIBs – the relatively low size threshold for an SI status automatically puts all of them under the supervision of the ECB.[107] Consequently, as mentioned above, the ECB in its supervisory capacity constitutes the main supervisor of EU G-SIBs, with the exception of some macroprudential aspects that will be discussed below.

Similarly to the US methodology, the EU framework for G-SIIs designation repeats the mistakes of the BCBS regime. However, in contrast to the American solutions, the substitutability cap has not been lowered, and the additional wholesale funding ratio has been added to the ancillary indicators. The path to supervisory judgment is also open, allowing all options to change the position of G-SIIs on the list, apart from removing them from it. The supervision-oriented method for SI designation resembles to some extent the blunt $250 billion threshold for higher Fed's scrutiny, but for the G-SIBs it does not change much, because they have no real option to fall below it and to stop being SIs in the EU. It mainly clarifies the supervisory competences and thus points at the agencies responsible for shaping many of the G-SIB-specific rules.

3.3 G-SIB capital buffer

The main goal of G-SIB designation is not to stigmatize banks, or worse to provide a list of ones too big to fail that ought to be saved when worst comes to worst. Designation serves the purpose of subjecting G-SIBs to specific more stringent legal standards – it triggers an obligation to fulfil these standards. One of the most apparent requirements is the additional loss absorbency buffer,[108] the level of which is adjusted to the systemic relevance of each institution.

3.3.1 International level

Already the first version of the Basel Accord, the so-called Basel I, included bank capital adequacy rules. Basel II broadened and specified that framework, while Basel III strengthened it remarkably in the wake of the Global Financial Crisis.[109] Detailed analysis of all the capital requirements included in the newest BCBS

106 Art. 6 (5)(b) SSM Regulation. The general list of all entities supervised by the ECB is hence called 'List of significant supervised entities' (SSEs); see Table 3.5.

107 ECB, 'List of supervised entities as of 1 October 2021', www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.listofsupervisedentities202111.en.pdf?3cc68294ea26e5820547f77d05886b26, accessed 6 December 2021.

108 For Pillar 2 levels see Section 3.7.

109 Michael Gordy, Erik Heitfield, Jason Wu, 'Risk-Based Regulatory Capital and the Basel Accords', in Allen N. Berger, Philip Molyneux, and John O. S. Wilson (eds), *The Oxford Handbook of Banking*, Oxford University Press, 2015.

standards is beyond the scope of this contribution, so the focus will be put on the G-SIB surcharge, with only brief mention of the other buffers.

Apart from 'standard' Tier 1 and Tier 2 capital requirements, Basel III introduced a further capital conservation buffer, and a countercyclical buffer, that has to be set by the supervisors. In addition to those buffers, which are binding for all the banks, G-SIBs have to hold a G-SIB-specific surcharge. This pyramid of different buffers is based on equally complex RWA calculations, which in the case of G-SIBs are mostly conducted by the banks themselves.[110] As mentioned above, the level of this higher loss absorbency requirement depends on the bucket a given G-SIB is placed in according to the annual FSB list, so theoretically it increases with a G-SIB's rise in systemic importance. Allocation in the first bucket means a G-SIB buffer of 1% of RWAs, in the second 1.5%, in the third 2%, in the fourth 2.5%, and in the fifth 'deterrent' bucket 3.5%.[111] Starting from the cut-off score of 130 basis points, each bucket has a range of 100. The G-SIB buffer has to be met by Common Equity Tier 1 (CET1) capital only, which as the name indicates can consist solely of common equity.[112] As the assessment of systemic importance is based on data regarding the whole consolidated institution, the G-SIB buffer applies on a consolidated basis as well. The Basel framework also prescribes consequences for breaches of said requirement. If a G-SIB does not comply with this standard, it has to draft a capital remediation plan to restore the buffer.[113] Until the restoration is complete, the G-SIB is subject to dividend payout limitations and other restrictions as defined by the supervisors.

Even though the Basel framework does not explicitly mention supervisory discretion in the sections describing the G-SIB buffer, it points to the G-SIB designation methodology and the supervisory judgment there as a source of supervisors' flexibility.[114] The competence of supervisors to intervene in the designation and especially in the bucket allocation gives them the power to influence the level of additional capital a given bank has to hold.

The evaluation of the G-SIB buffer standard, similarly to the assessment of the whole bank capital framework, is always a tug of war between the preservation of financial stability that logically requires high capital buffers and the role large banks are playing in the real economy. Bernanke, Geithner and Paulson claim in their latest book that the Basel III regime 'quadrupled capital requirements for

110 The final result of such calculations is supposed to be confronted with the output floor counted using the standardized approach. See BCBS, 'Basel III: Finalising post-crisis reforms', 7 December 2017. The whole capital framework has been met with harsh criticism due to its unnecessary complexity. See Andrew Haldane, 'The dog and the frisbee', speech by Andrew Haldane, Bank of England, and Mr Vasileios Madouros, Bank of England, at the Federal Reserve Bank of Kansas City's 366th economic policy symposium, 'The changing policy landscape', Jackson Hole, Wyoming, 31 August 2012.

111 BCBS G-SIB Methodology 2018, point 46.

112 Ibid.

113 Ibid, point 56.

114 Ibid, point 58.

the largest banks'.[115] Of course the numerical multiplying of capital thresholds does not reflect how much more resilient banks really are. One thing is certain – G-SIBs do hold more capital now. However, how much more varies, given their different capital ratios before and during the crisis.[116] As for the real economy and the argument that higher capital requirements stall lending, the Macroeconomic Assessment Group (MAG) of the Bank for International Settlements (BIS) concluded in its study[117] that even though increasing capital buffers have an adverse impact on growth, in the long run the benefits from reduced probability of systemic crisis vastly outweigh such potential losses. Naturally, banks argue against it by demonstrating that they cannot properly fulfil their functions and boost the real economy. It remains unsolved, but one can safely conclude that it is advantageous for the whole financial system that G-SIBs are required to hold more capital according to their 'systemic-ness'.[118]

However, as shown above, this systemic importance level is not really assessed accurately. In that regard, the G-SIB buffer regime repeats the mistakes of the designation procedure. Similarly, it lacks recognition of the individual character of G-SIBs and how they differ within this one group. Strikingly contrasting institutions are expected to hold the same levels of additional capital. One could argue that, as the G-SIB buffer is calculated as a percentage of RWAs, it actually reflects the individual risk of each entity and thus mitigates the apparent generalizing character of the bucketing approach. Without going into details of the problematic calculation framework of RWAs, it is safe to conclude that they are not a reliable measure of a given bank's riskiness.[119] For now, they are calculated either according to a standardized approach based on externally prescribed ratings that by definition do not take into account the specificity of each institution, or utilizing internal models that have been partially blamed for the severity of the GFC. Apart from these methods, which are far from ideal, detailed risk weights also remain controversial. Zero-risk weights of sovereign debt, or risk weights of mortgage-backed securities lower than underlying mortgages,[120] are only two examples of risk assessments that are difficult to understand and support. Overall, as Mervyn King concluded, 'calibrating risk weights adequately is an illusion.'[121] Thus, the only hope for actual

115 Bernanke, Geithner, Paulson, *Firefighting*, p. 113.

116 See Section 2.2.3.

117 Macroeconomic Assessment Group, 'Assessment of the macroeconomic impact of higher loss absorbency for globally systemically important banks', Bank for International Settlements, October 2011.

118 For an overview of theories on whether capital requirements are costly, see Jean Dermine, 'Bank regulations after the Global Financial Crisis: Good intentions and unintended evil', *European Financial Management*, 2013, 19/4.

119 For an analysis of the risk-weighting process and calculation of capital see Simon Gleeson, *Gleeson on the International Regulation of Banking*, Oxford University Press, 2018, p. 111.

120 For instance JP Morgan was offloading loans and buying bonds because MBSs were less risky than mortgages backing them. See Robert Armstrong, 'JPMorgan Pours $130 bn of Excess Cash into Bonds in Major Shift', *Financial Times*, 3 November 2019.

121 Mervyn King, *The End of Alchemy: Money, Banking, and the Future of the Global Economy*, WW Norton, 2017, p. 258.

individualization of G-SIB buffers is the supervisory judgment during the designation process. Also, in the context of the general capital framework it can still be hoped that potential Pillar 2 buffers could make up for the prevailing generalization tendencies.[122] For now the G-SIB buffer follows the general Basel paradigm of 'one size fits all',[123] with only the discretionary tools to fix it.

3.3.2 Regional level

Analogically to the G-SIB designation framework, the US and EU implementations of the G-SIB buffer rules also closely resemble the original Basel III standards. However, there are some important differences, especially when it comes to the US regime.

3.3.2.1 USA

In the post-crisis time of reflection and reform, Tim Geithner, then Treasury Secretary, was known for one mantra: 'Capital, capital, capital.'[124] This is visible in the American implementation of the G-SIB buffer. There are two important departures from the version of the BCBS. First, the process of calculation of the G-SIB buffer does not depend only on the method used for designation (Basel method). Apart from calculating their scores according to the Basel method (method 1), G-SIBs also have to use another method (method 2). The latter one replaces the substitutability indicator with short-term wholesale funding. Importantly, the method 2 score is a sum of sub-indicator scores in the areas of size, complexity, interconnectedness, cross-jurisdictional activity, and the short-term wholesale funding score, which automatically makes the overall result higher (in comparison to method 1, where instead of a sum we have a simple average) (Table 3.2).[125]

Accordingly, with method 2 there are more buckets/ranges of points, and the respective buffer levels also rise.[126] The minor, but relevant, difference is that in

Table 3.2 Brief comparison of US G-SIB buffer calculation methods

Method 1	*Method 2*
Substitutability	Wholesale short-term funding
Simple average	Sum of sub-indicator scores
Lower overall scores	Higher overall scores

122 See Section 3.7.

123 See strong arguments in that regard in Rym Ayadi, Emrah Arbak, Willem Pieter De Groen, with a contribution from David T. Llewellyn, 'Regulation of European Banks and Business Models: Towards a New Paradigm?', *CEPS*, 2012.

124 Bernanke, Geithner, Paulson, *Firefighting*, p. 112.

125 12 CFR § 217.405.

126 12 CFR § 217.403 (c).

Table 3.3 Method 1 scores and respective surcharges

Method 1 score	*Method 1 surcharge*
Below 130	0.0%
130–229	1.0%
230–329	1.5%
330–429	2.0%
430–529	2.5%
530–629	3.5%

Table 3.4 Method 2 scores and respective surcharges

Method 2 score	*Method 2 surcharge*
Below 130	0.0%
130–229	1.0%
230–329	1.5%
330–429	2.0%
430–529	2.5%
530–629	3.0%
630–729	3.5%
730–829	4.0%
830–929	4.5%
930–1029	5.0%
1030–1129	5.5%

method 1 G-SIBs exceeding a level of 529 basis points have to hold 3.5% of RWAs compared to only 3% with method 2, as in the latter one it rises by 0.5 percentage points every 100 points (see Tables 3.3 and 3.4). The legal regime even determines how the G-SIB surcharge increases further, should an institution exceed levels explicitly stated in the provision.[127] The resulting buffers calculated with both methods (1 and 2) are compared, and the entity has to hold the higher one.

According to the data published by the Office of Financial Research for each US G-SIB on the exact scores for each indicator,[128] it seems like all of them are designated based on method 2, and so depending on the short-term funding aspect. This is also visible in the fact that, as method 1 under the US rules and the methodology of the BCBS are almost identical, the scores and buckets should match as well if method 1 was utilized, yet they do not – US G-SIBs are allocated in the buckets higher than those prescribed for them by the FSB, which points to method 2 as the prevailing one.[129] That could indicate that actually most of the US G-SIBs report higher systemic importance scores when short-term funding is measured. The relevance of this factor is even more striking when looking at individual institutions

127 12 CFR § 217.403 (b)(2) and (c)(2) for method 1 and method 2, respectively.

128 OFR, 'Bank Systemic Risk Monitor', US G-SIB Surcharges 2021.

129 All of the US G-SIBs are to hold more capital than prescribed by the FSB. See OFR, 'Bank Systemic Risk Monitor', US G-SIB Surcharges 2021, and FSB 2021 G-SIB list.

and the differences between their BCBS buffers, which do not take short-term funding into account, and the US surcharges, which do. According to the BCBS methodology and the FSB list, Morgan Stanley is at the 'bucket 1' level of systemic importance, with the obligation to hold only 1% as G-SIB buffer in contrast to 3% in the US framework. In general, the average difference in buffers is at around 1 percentage point, which shows the scale of the influence of short-term funding.

All these signs could be perceived as a hint for the BCBS that this indicator should also be included in the BCBS designation framework. In general, as a result, US G-SIBs are obliged to hold higher levels of G-SIB surcharges than those prescribed by the FSB, and one could argue that the calculation process is a bit more precise and better reflects the individualism of G-SIBs. This appreciation of G-SIB diversity fades a bit in the light of the Collins Amendment, though. It obliges all BHCs to calculate RWAs both according to internal and standardized models and to take the higher score as their RWA level. As a result, this amendment makes the argument of individual risk mirrored by the RWA calculation even more flawed than in the case of the Basel framework.

The second way in which the US implementation of the G-SIB surcharge standard departs from the Basel version is connected to the supervisory discretion element. Apart from the role of the supervisory judgment in the designation process, Basel does not grant any discretion regarding the setting of the buffer, but the Federal Reserve in the USA has much more flexibility. Namely, it can adjust the amount of the G-SIB surcharge if it determines such a solution appropriate in light of the given entity's capital structure, size, complexity, risk profile, and scope of operations.[130] Size and complexity are included among the indicators calculated for the G-SIB surcharge, but taking into consideration capital structure, risk profile, and scope of operations could allow supervisors to reflect better the specific character of each G-SIB.

3.3.2.2 EU

Implementation of the G-SIB surcharge in the EU follows the Basel framework very closely. There are no diverging points, as in the case of the US regime. G-SIIs shall maintain an additional buffer on a consolidated basis, in accordance with the bucket that they are allocated into.[131] The surcharge shall consist of common equity, and the ranges of percentage amounts are exactly as prescribed in the Basel methodology.[132] Supervisory discretion is mentioned only in the context of bucket allocation.[133]

What is striking from a practical perspective, especially in comparison to the USA, is the level of the G-SII buffers. All US G-SIBs, except for State Street, are required to maintain G-SIB surcharges higher than those prescribed by the FSB. Differences in some cases reach 2 percentage points (Morgan Stanley has to

130 12 CFR § 217.400 (c)(2).
131 Art. 131(4) and (9) CRD.
132 Art. 5(3) ComReg No 1222/2014.
133 Art. 131(10) CRD. See Section 3.2.2.2.

hold 3% instead of the FSB-required 1%). This seems reasonable, given the constant mantra that the Basel standards constitute minima, and national legislators can always increase them in the implementation process. EU lawmakers however have decided to stick with the minima. Actually, all EU G-SIBs[134] are obliged to hold the levels of G-SII buffer as shown in the FSB list.

The EU G-SII buffer regime does not encompass the changes visible in the US framework, which could vastly improve it, especially from the perspective of the individualistic character of G-SIBs. It almost copies the Basel standards, including the exact levels of additional capital, sticking to the lowest required amounts. Naturally, if compared to the pre-crisis levels, G-SIIs hold more capital, more common equity,[135] but it is difficult to claim that the systemic importance of these institutions is suitably addressed by this additional buffer. Generally, all of these EU banks hold almost the same surcharges, ranging between 1% and 1.5% of RWAs, even though they played different roles during the GFC. Again, supervisory discretion could constitute a door to more individualized standards, even if in the EU framework this could mean only reallocating G-SIIs to different buckets.

3.4 G-SIB leverage ratio

There is a common perception that in pre-crisis times G-SIBs held too much debt and not enough equity (or core capital). Due to their risk-independence, leverage limits constitute not only a prudential requirement in itself but also a credible backstop should the risk-sensitive buffers fail.[136] Even though in some regions leverage limits existed,[137] most of the financial world was amazed by the new Basel II risk-dependent capital requirements and believed they would be enough to keep banks safe. It was not, and the BCBS returned to its abandoned concepts of risk-insensitive leverage ratios.

3.4.1 International level

In 2014, the BCBS in its Basel III framework introduced a minimum 3% leverage ratio requirement.[138] This means that for each banking institution the Tier 1 capital

134 For the sake of this comparison FSB 2020 G-SIB list had to be used (see FSB, '2020 list of global systemically important banks (G-SIBs)', 11 November 2020), as the EU national authorities have not yet (as of 10 December 2021) announced their designations and G-SII buffer requirements for the reporting period that the FSB 2021 G-SIB list was based on. See ESRB, 'Overview of national capital-based measures', as of 1 October 2021, www.esrb.europa.eu/national_policy/systemically/html/index.en.html, accessed 13 December 2021, and compared to the FSB G-SIB list from 2020.

135 David Crow, Stephen Morris, Laura Noonan, 'Banks Plead for Rethink over Post-Crisis Rules', *Financial Times*, 19 March 2020.

136 Both US and EU regulators treat it as a backstop. See for instance Recital 8 of Regulation (EU) 2019/876; Congressional Research Service, 'Enhanced prudential regulation of large banks', 6 May 2019, p. 27.

137 See Section 2.1.2.

138 BCBS, 'Basel III leverage'.

over total exposure measure must be equal to or exceed 3%. Importantly, the total exposure measure encompasses all exposures, both on- and off-balance sheet.[139] However, at that point this requirement did not differentiate between G-SIBs and the rest of the banking world. It is difficult to understand and explain such an omission, especially in the presence of the specific risk-based G-SIB buffer.

Fortunately, in December 2017, the final standards of the Basel III framework were adopted, and among them also the G-SIB leverage ratio buffer. Similarly to the higher loss absorbency requirement, it is based on the score a G-SIB receives according to the BCBS designation methodology, and so on the bucket it is allocated to by the FSB list. Specifically, the total minimum leverage ratio that a given G-SIB should maintain constitutes the sum of 3% of the standard leverage requirement plus half the level of the G-SIB surcharge, as prescribed by the FSB's bucket placement. For instance, Citigroup, which landed in the third bucket (2% G-SIB buffer),[140] has to comply with a 4% leverage ratio:

$$3 + \left(2 / 2\right) = 4$$

In turn, ING, allocated in the lowest bucket (1% G-SIB buffer), should maintain a minimum 3.5% leverage ratio:

$$3 + \left(1 / 2\right) = 3.5$$

Theoretically, in this way the minimum leverage ratio requirement should increase proportionally to a G-SIB's systemic importance. However, the systemic importance assessment is rather flawed[141] and does not take into account the highly individual character of G-SIBs. In the case of leverage ratio, which treats the whole exposure as equally risky, custodian banks are especially disadvantaged. Banks like State Street or BNY Mellon, because of their business model, which is essentially based on holding securities and administering transfers of their ownership, seem to have overly leveraged balance sheets. Yet, as shown before in Chapter 2, they constituted two most stable G-SIBs during the GFC and withstood this turmoil without receiving extensive help.[142] The omission of the business model aspect in the G-SIB designation again proves to be problematic.

Consequently, the same rather negative evaluation as the one regarding designation is accurate in the context of the G-SIB leverage ratio buffer. Also, similarly to the capital surcharge, no supervisory discretion is granted specifically in the context of leverage. The supervisory judgment competence from the designation framework applies.

As for consequences of a breach of the given requirement, the Basel framework includes a table presenting what kind of capital distribution constraints,

139 As well as derivative exposures and security financing transactions. Ibid, points 12 and on.
140 FSB 2021 G-SIB list.
141 See Section 3.2.
142 Apart from TARP that has been forced upon them.

from 40% to 100% (capital conservation as percentage of earnings), should be set in place, depending on the severity of the breach.[143] It is presented together with potential breaches of the risk-based CET1 ratio and it is enough to violate one of the requirements (leverage or CET1) to be subject to the given constraints. In this way it fills the loophole of vague consequences mentioned in the section on the G-SIB surcharge.[144] The framework was originally supposed to be implemented by 1 January 2022, but due to the coronavirus pandemic, the BCBS postponed the implementation deadline until 1 January 2023.[145]

The Basel leverage ratio requirement in itself, even without mentioning of the G-SIB ratio, is criticized from all possible perspectives. Many claim that it incentivizes banks to take on more risk, because it does not matter for the purpose of this requirement how risky a given asset is. Also, Duffie stresses that the repo market for government securities suffers, as they are included in the exposure measure calculation, even though they are considered risk-free.[146] On the other hand, some support the requirement in itself but stress that it is too low and should be increased to as high as 15%.[147] Only rare voices, mostly from the side of the regulators themselves, praise the solution introduced by the Basel III framework.[148] Regardless of the exact level of leverage ratio, it is clearly problematic that it is not properly adjusted to the specific features and systemic importance of individual G-SIBs.

3.4.2 Regional level

Similarly to risk-based buffers, the general leverage ratio is not an entirely new requirement at the regional level. It functioned in the USA before the GFC but was absent from the EU legal regime. This divergence constituted the main reason for significant differences between leverage levels of large European and American banks.[149]

3.4.2.1 USA

In the USA, the leverage ratio was introduced already in the 1990s as a part of capital requirements reform. It was set at the level of 3% or 4%, depending mostly

143 BCBS, 'Leverage ratio requirements for global systemically important banks', 15 December 2019, point 40.5.

144 See Section 3.3.1.

145 BCBS, 'Governors and Heads of Supervision announce deferral of Basel III implementation to increase operational capacity of banks and supervisors to respond to Covid-19', Press Release, 27 March 2020, www.bis.org/press/p200327.htm, accessed 13 December 2021.

146 Darrell Duffie, 'Financial regulatory reform after the crisis: An assessment', ECB Forum on Central Banking, June 2016, p. 13.

147 Anat Admati et al., 'Healthy Banking System is the Goal, not Profitable Banks', letter published by *Financial Times*, 9 November 2010.

148 For instance EBA's empirical study praised the 3% level. See EBA, 'EBA Report on the leverage ratio requirements under Article 511 of the CRR', 3 August 2016.

149 See Section 2.2.2.

on the type of institution. Prevailingly, a 4% minimum (further as US leverage ratio) was required, and all of America's largest banking entities met this threshold before the GFC.[150] There are two main possible reasons why it did not work as it should have back then. First, investment banks were not encompassed by that requirement, as they were not BHCs or depository institutions. Now it is different, as there are virtually no non-BHCs among the most relevant investment banks on Wall Street.[151] The second reason is connected with the way the US leverage ratio is calculated – as Tier 1 capital over total assets. The denominator measure of total assets does not encompass off-balance-sheet items, which as we now know constituted an enormous part of operations of some G-SIBs in the lead-up to the crisis.[152]

So, with the implementation of the Basel III leverage ratio, US legislators corrected this mistake. The requirement of 3% is a copy of the BCBS standard, including an exposure measure also encompassing off-balance-sheet assets.[153] This measure is called the supplementary leverage ratio and, importantly, is binding in addition to the US leverage ratio, not instead of it. Finally, the US legal regime includes one more stringent requirement for US G-SIBs – the enhanced supplementary leverage ratio. This simply prescribes a supplementary leverage ratio 2 percentage points higher than the basic 3% (so 5%, and 6% to be considered well-capitalized). Thus, it arbitrarily establishes the same standard for all US G-SIBs.[154]

To some extent, recent reform[155] in the USA of the (enhanced) supplementary ratio framework addresses the disproportional burden that the leverage requirement places on custodian banks. Namely, US regulators exempted funds of a custodian bank[156] that are deposited with the predetermined central banks,[157] up to the 'value of deposits of the custodial bank that are linked to fiduciary or custodial and safekeeping accounts'.[158] In this way US regulators want to mitigate the previous penalization of the custody-based business model. For now, there are three banks identified as custodian: State Street and BNY Mellon (both G-SIBs) and

150 Ibid.

151 Lehman Brothers failed, Bear Stearns and Merrill Lynch were acquired by JP Morgan and Bank of America, respectively, and Goldman Sachs and Morgan Stanley turned into BHCs.

152 See Section 2.2.2.

153 12 CFR § 217.10.

154 There is a proposal by the Federal Reserve and OCC to implement the BCBS G-SIB leverage ratio (3% and half of the G-SIB surcharge). See Federal Register. Volume 83, Issue 76, 19 April 2018 (83 FR 17317).

155 Federal Register. Volume 85, Issue 17, 27 January 2020 (85 FR 4569).

156 Ibid.

157 Ibid. (1) the Federal Reserve System, (2) the European Central Bank, and (3) central banks of member countries of the Organisation for Economic Co-operation and Development if the member country has been assigned a zero per cent risk weight under the agencies' regulatory capital rule and the sovereign debt of such member country is not in default or has not been in default during the previous five years.

158 Ibid.

Northern Trust. They are estimated to be granted an exclusion equivalent to 21% to 30% of total assets and reduction in capital requirements of an aggregate $8 billion.[159] These numbers clearly show how much generalizing tendencies in G-SIB-oriented provisions could cost and how necessary the adjustments are.

3.4.2.2 EU

EU lawmakers have historically been more reluctant in the context of the leverage ratio requirement. Originally, the Capital Requirements Regulation[160] only imposed monitoring duties on national supervisors with the discretion to assess the need of setting leverage limits in their country. Only the Banking Package, which was proposed in 2016 and recently adopted, introduced a firm 3% minimum leverage ratio.[161] The structure of this requirement closely mirrors the Basel III standard. Also in the context of G-SIBs, the same strategy was followed. From 1 January 2023, when the provisions will come into force, G-SIIs will have to maintain a combined leverage ratio of the standard 3% plus half of the G-SII buffer level according to the bucket allocation.[162] This solution makes the final level of the individual G-SII leverage ratio indirectly dependent on the supervisory discretion that is granted in the context of designation/bucket placement.

Regardless of the flaws of the American G-SIB leverage ratio structure, especially the rather arbitrary character and terminological maze, EU regulators could learn from the introduction of custodian banks' relief and try to adjust the future G-SII leverage buffer to a given institution's features, business model, and other aspects not included in the Basel framework. For now, the only institutions that are shielded from the leverage ratio impact are the public development banks.[163]

3.5 Large exposure limit

The risk-based G-SIB surcharge and the G-SIB leverage ratio buffer are mainly supposed to address the stability of the individual institution.[164] They improve individual resilience but do not directly address the risk of contagion should one of the systemic entities fail. Hence, the BCBS introduced a large exposure framework that is intended to complete the capital regime, as 'no form of concentration risk is considered in calculating capital requirements'.[165]

159 Congressional Research Service, 'Enhanced Prudential', p. 25.

160 Recitals 94 and 95 of CRR.

161 The 3% ratio is binding from 28 June 2021. It is encompassed by Art. 1(46)(a) Regulation 2019/876. It introduces the amendment of Art. 92 CRR.

162 Art. 1(46)(b) Regulation 2019/876.

163 See Recital 11 of the Regulation 2019/876.

164 Of course theoretically they depend on the systemic importance of a given G-SIB so are indirectly addressing also systemic risk. However, given the flaws mentioned, they retain a prevailingly micro-prudential character.

165 BCBS, 'Supervisory framework for measuring', point 3.

3.5.1 International level

The general large exposures framework applies to all internationally active banks and limits the sum of all exposure of a bank to a single counterparty[166] to 25% of Tier 1 capital.[167] The requirement is more stringent in the case of exposure between G-SIBs. These exposures cannot exceed 15% of Tier 1 capital.[168] Importantly, the exposure between a G-SIB and a non-G-SIB is still limited to 25%. This differentiation is logical, as it has been empirically proven that there is a bigger default correlation between systemic entities than between systemic entities and other firms.[169]

The exposure is calculated according to the measures of the risk-based capital framework.[170] However, in contrast to previous capital and leverage limits, a breach of the large exposure requirement does not trigger any material consequences – it must be communicated to the supervisor and 'rapidly rectified'.[171] This mild approach could undermine the effectiveness of such a measure.

The limits are set as minima and of course can be tailored more strictly by national laws. Even though the exposure is generally calculated on a consolidated level, host country lawmakers for subsidiaries constituting part of a G-SIB-designated group can require the given subsidiary to respect the 15% exposure limit to other G-SIBs on an individual basis.[172] However, apart from this competence in the context of drafting the law, no supervisory discretion is granted by this part of the Basel III framework. The limit is very arbitrary, and it does not take into account the specific features or individual character of the G-SIB nor does it allow for supervisors to consider them. Apart from the exemption of sovereign exposure from the calculation,[173] no risk weightings are utilized to assess how risky a given exposure is. In contrast to capital and leverage standards, not even the bucket placement on the FSB list is taken into account. Again, such generalizations towards G-SIBs could be problematic for institutions with prevailingly custodian business models, whose exposures are naturally higher and whose counterparties are mostly other systemic entities. On the other hand, intraday exposures are exempted from the large exposures limit, in order not to disturb payment and settlement operations, so in some way favoring G-SIBs providing these services.[174] That is a dangerous exemption, though. It could render the framework useless should a G-SIB fail during the day. Adding a more coherent

166 Or a group of connected counterparties as defined in ibid, point 20. Counterparties are considered connected mostly on the basis of control relationship (voting, etc.) or economic interdependence.
167 Ibid, point 16.
168 Ibid.
169 Federal Reserve, 'Calibrating the Single-Counterparty Credit Limit between Systemically Important Financial Institutions', 4 May 2016.
170 BCBS, 'Supervisory framework for measuring', point 30.
171 Ibid, point 18.
172 Ibid, point 92.
173 Ibid, point 13.
174 Ibid, point 65.

system taking into account the individual character and business model of the relevant G-SIBs could improve this regime.

3.5.2 Regional level

As described in Chapter 2,[175] limits on credit exposure were binding already before the crisis both in the USA and in the EU. However, they encompassed a rather narrow scope of entities, applying for instance to depositary institutions only (USA).[176] In order to implement the Basel III large exposure framework, new provisions were adopted in these regions.

3.5.2.1 USA

Implementation in the USA does not significantly depart from the BCBS standards. Most importantly, the limits are the same: 25% of Tier 1 capital for exposures between non-G-SIB institutions and in relations between G-SIBs and non-G-SIBs, while the 15% threshold is maintained for inter-G-SIB exposures. American rules specify the Basel III solution and set the 15% limit also for exposures between US G-SIBs and non-bank SIFIs, as designated by the FSOC, and non-US G-SIBs.[177] The framework also includes more exemptions. Apart from the 'standard' waiver of limits on intraday exposure, or on exposure to state agencies, US provisions explicitly exempt the European Commission, European Central Bank, Bank of International Settlements, International Monetary Fund, and other international bodies.[178] Also the Federal Reserve Board is granted discretion to exempt any transaction if it finds that 'such exemption is in the public interest and is consistent with the purpose of this subpart'.[179] This rule prescribes supervisory discretion, in comparison to a lack of it in the original Basel standard. However, it still does not allow supervisors to adjust limits according to the individual features of the G-SIBs or their business model. They are all treated the same, regardless of the true threat of contagion each of them poses.

3.5.2.2 EU

The original general limit on intrabank exposures adopted in the EU in 2006 was actually more stringent than the present Basel proposal. It set the threshold at 20% of capital.[180] After the crisis, a new standard was drafted. EU lawmakers chose a specific solution. The general limit is set at 25% of eligible capital, or €150 million, whichever is higher.[181] When the latter is, the value of exposure shall 'not exceed

175 See Section 2.1.2.
176 12 US Code § 84.
177 12 CFR § 252.71(x)(2) and 12 CFR § 252.172(c)(3).
178 12 CFR § 252.77.
179 12 CFR § 252.77(a)(6).
180 Art. 111(2) Directive 2006/48/EC.
181 Art. 395(1) CRR.

a reasonable limit in terms of the institution's eligible capital'.[182] This provision further allows the institution itself to assess this 'reasonable limit'. It seems, however, that this freedom would apply only to smaller banks, as it is difficult to imagine a G-SIB having its 25% of capital lower than €150 million. That could be the reason why a G-SII-specific large exposure limit between G-SIIs (both EU and non-EU) is set at 15% of Tier 1 capital, without a numerical sum to compare to.[183] Further, in the EU, a breach of the large exposure limit translates into the requirement to hold more capital. For instance, for exceeding the 25% but not 40% of eligible capital the bank has to double its capital adequacy ratio.[184] The amount of capital required multiplies further with the increase of the excess exposure. Such a solution could definitely incentivize institutions not to violate the limit.

However, from the perspective of the G-SII limit, it is the same arbitrary threshold as the one included in the Basel III framework and in the American system. They acknowledge only that exposures between G-SIIs pose a bigger systemic threat but do not take into consideration the character of the exposure, the relation to the G-SIB's business model, or even the place the given entity occupies in the network of exposures. Also, no discretion in setting this threshold is left to supervisors.

3.6 Resolution of G-SIBs and TLAC

Failures of systemic entities during the Global Financial Crisis have revealed the inadequacy of resolution regimes not only in the context of banks but especially in the context of G-SIBs – internationally active, complex, and interconnected institutions. Mervyn King summed it up famously, pointing out that banks are international in life and national in death.[185] Unsurprisingly, the resolution of G-SIBs has turned into a regulatory topic of utmost relevance, and the new goal was set for them to be 'global in life and orderly in death'.[186]

3.6.1 International level

At the international level there are two documents describing resolution-related standards for G-SIBs, and they are both authored by the Financial Stability Board, so the body annually publishing the G-SIB list.

182 Ibid.

183 Ibid.

184 Art. 397 CRR.

185 See for instance in Peter Thal Larsen, 'Bank Regulation Needs Straightening Out', *Financial Times*, 30 March 2009.

186 See Randal K. Quarles, *Global in Life and Orderly in Death: Post-Crisis Reforms and the Too-Big-to-Fail Question. Remarks by Randal K. Quarles*, 7 July 2020, www.fsb.org/2020/07/global-in-life-and-orderly-in-death-post-crisis-reforms-and-the-too-big-to-fail-question/, accessed 13 December 2021.

The document 'Key Attributes of Effective Resolution Regimes for Financial Institutions'[187] includes the advisable features and mechanisms of an effective resolution regime. Even though all of the standards can be treated as applying to the resolution of G-SIBs, four rules address these entities explicitly. First, according to Attribute No. 8, home and host authorities of G-SIBs should establish Crisis Management Groups (CMGs) that would include supervisors, central banks, resolution authorities, finance ministers, and institutions overseeing deposit guarantee schemes. Such groups are expected to submit reports to the FSB on the topics covered by subsequent Attributes, such as recovery and resolution planning, or institution-specific coordination agreements. They are also meant to review G-SIBs' resolvability in an FSB Resolvability Assessment Process (RAP).[188]

Secondly, Attribute No. 9 prescribes that the home and host authorities of a G-SIB conclude an institution-specific cooperation agreement that would define their roles during the resolution and establish a framework for information sharing and the developing of recovery and resolution plans.[189] Such agreements should be public. Also, these documents ought to be institution-specific, not only G-SIB-oriented, which finally grants the level of individualization that is needed in the context of such different systemic entities.

Thirdly, Attribute No. 10 includes a requirement for the resolution authorities to conduct resolvability assessments from the perspective of feasibility and credibility of resolution strategies. Such an evaluation should be undertaken at the group level, by the home authority of the G-SIB, but in coordination with the group's CMG. Importantly, the last point of this attribute[190] recommends that the supervisory or resolution authorities, in order to improve the resolvability of a G-SIB, have the competence to require it to introduce 'changes to a firm's business practices, structure or organization, to reduce the complexity and costliness of resolution.' This grants relatively broad discretionary supervisory powers and could allow G-SIBs to be treated individually in the resolution regime.

Last but not least, Attribute No. 11 describes the obligation to establish an ongoing recovery and resolution planning (RRP) process. RRPs should take into account 'specific circumstances of the firm and reflect its nature, complexity, interconnectedness, level of substitutability and size', so again this requirement is highly individualized. Even though four out of the five features mentioned are included in the designation methodology, the remaining one – 'nature' – is so broad that it could expand the scope of characteristics reflected by such plans. Recovery plans are supposed to be drafted by the institutions themselves and

187 FSB, 'Key Attributes of Effective Resolution Regimes for Financial Institutions', October 2014 (Key Attributes).

188 FSB, '2013 update of group of global systemically important banks (G-SIBs)', 11 November 2013, Annex II.

189 Detailed content of such agreements can be found in Annex to Key Attributes, see FSB, 'I-Annex 2 – Essential Elements of Institution-Specific Cross-border Cooperation Agreements', Annex to Key Attribute 9, October 2014.

190 Key Attribute No. 10.5.

only assessed by the authorities, whereas resolution plans ought to be set out by the authorities on an individual basis. The former describe how a distressed firm should operate in a crisis in order to recover and not enter resolution. The latter should enable 'resolution of any firm without severe systemic disruption and without exposing taxpayers to loss.'[191] Both strategies should be reviewed at least annually, and measures to address any deficiencies should be put in place.

One year after the Key Attributes describing resolution planning and coordination in general were adopted, the FSB issued another standard – 'Principles on Loss-absorbing and Recapitalisation Capacity of G-SIBs in Resolution. Total Loss-absorbing Capacity (TLAC) Term Sheet'.[192] As the name suggests it prescribes the need for G-SIBs to hold a minimum amount of capital for the case of resolution. Principle (ii) advocates for authorities to set the level of TLAC (also called external TLAC) on a firm-by-firm basis. The calibration should take into account 'recovery and resolution plans of individual G-SIBs, their systemic footprint, business model, risk profile and organisational structure'. These are very relevant indicators that are not considered by the BCBS/FSB G-SIB designation. The FSB standard formulated this way allows resolution authority to truly adjust the level of required TLAC. The Term Sheet includes only a general minimum – all G-SIBs are supposed to hold TLAC of at least 16% of the resolution group's[193] RWAs and 6% of the Basel leverage ratio denominator.[194] As for TLAC's relation with minimum Basel III capital requirements, almost all instruments that exceed their levels can be counted towards TLAC. There are some exceptions – for instance TLAC and capital requirements cannot be met with CET1 capital only, because that would be problematic during resolution, as normally CET1 (constituting going concern capital) would have evaporated before resolution is triggered.[195] As for the composition, TLAC-eligible instruments must also meet certain criteria,[196] and some liabilities are totally excluded from this requirement.[197] The TLAC standard takes into account the potential lack of trust between home and host supervisors of a given G-SIB. Namely each material subgroup (significant subsidiaries of resolution entity)[198] has to hold a prescribed amount of internal TLAC – between 75 and 95% of external TLAC that would apply to this subgroup if it were the resolution entity itself. Importantly, the host

191 Key Attribute No. 11.6.

192 FSB, 'Principles on Loss-absorbing and Recapitalisation Capacity of G-SIBs in Resolution. Total Loss-absorbing Capacity (TLAC) Term Sheet', November 2015 (further either as TLAC Principles or TLAC Term Sheet, as the two parts of the document are clearly distinguishable).

193 Resolution group encompasses resolution entity (the one distinguished in the resolution plan as the institution at which resolution proceedings should start) and all its direct or indirect subsidiaries.

194 From 2022 the increased levels of FSB's TLAC will be applicable – 18% will be a minimum for RWA measure and 6.75% for leverage ratio.

195 Gleeson, *Gleeson on*, p. 94.

196 TLAC Term Sheet, Section 9.

197 Ibid, Section 10.

198 Ibid, Section 16.

authority is responsible for setting the exact level within that range, so it shall again be established on an individual basis.[199]

The general framework for resolution and TLAC has been criticized. Not many believed that the cooperation between resolution authorities would work out, others simply did not perceive it as fully credible, and some raised voices that TLAC replicates Tier 2 capital,[200] or even incentivizes increases in leverage.[201] However, a recent report by the FSB stresses noticeable improvements of G-SIB resolvability, even in the light of the work that still needs to be done.[202] Importantly, the international framework for the resolution of G-SIBs consists of many standards dependent on supervisory discretion and allowing authorities to adjust the rules to each G-SIB's individual features. It somehow indicates that the FSB realizes that the mere designation of G-SIBs does not differentiate them to the necessary extent. According to this global resolution regime, coordination agreements have to be institution-specific and not just general promises of cooperation between state authorities. While the individual character of the resolvability assessment and RRPs is natural, it is a positive surprise that TLAC is supposed to be established for each G-SIB separately, only above a given minimum. It shows TLAC's departure from the risk-based capital requirements and leverage ratio, which are bucket-dependent, not to be adjusted individually. Hence, the resolution framework is arguably the most individually drafted of the G-SIB-oriented regulations and, additionally, it also grants supervisory powers allowing it to be adjusted even further.

3.6.2 Regional level

Many changes in the regional systems for unwinding financial institutions have been introduced post-crisis. National authorities also tried to implement the FSB's standards, with various results.

3.6.2.1 USA

A specific FDIC-sponsored resolution regime for banks existed in the USA already before the crisis, but its scope was limited to FDIC-insured institutions. After the downturn, Title II of the Dodd–Frank Act introduced the Orderly Liquidation

199 Ibid, Section 18.

200 See Gleeson, *Gleeson on*, p. 93; John Armour, 'Making Bank Resolution Credible' in Niamh Moloney, Eilis Ferran and Jennifer Payne (eds), *The Oxford Handbook of Financial Regulation*, Oxford University Press, 2015; Paul Kupiec, 'Will TLAC regulations fix the G-SIB too-big-to-fail problem?', *Journal of Financial Stability*, 2016, 24; also Duffie, 'Financial regulatory', p. 27.

201 Thomas Hoenig, 'The relative role of debt in bank resiliency and resolvability', Remarks presented to the Peterson Institute for International Economics, Washington DC, 20 January 2016, https://archive.fdic.gov/view/fdic/4217, accessed 14 December 2021.

202 FSB, 'Resolution Report. Glass half-full or still half-empty?', 7 December 2021, p. 2.

Authority (OLA), a regime aimed at unwinding financial companies that pose a threat to the financial stability of the USA.[203] However, the resolution according to Title II is contingent on the agreement of several US supervisors, the Secretary Treasury, and the President, hence it is not triggered by the mere designation as a G-SIB.

In turn, Section 165(d) of the Dodd–Frank Act includes the implementation of the Key Attribute on resolution planning. All BHCs over $50 billion in assets must submit resolution plans to the FDIC and the Federal Reserve.[204] US G-SIBs, as designated, are required to draft such plans every two years, so not annually as advised by the FSB. Other institutions have to fulfil this requirement once every three years.[205] The plans are commonly known as living wills and they include both recovery and resolution elements. G-SIBs have to outline a strategic plan of rapid and orderly resolution, describing, for example, funding, capital, and liquidity needs, and the corporate structure of the entity. Typical sections of such plans describe the resolution strategy (prevailingly a Single Point of Entry in the case of US G-SIBs), material entities/interconnectedness, governance mechanisms, and buffer resilience.[206] Living wills are reviewed jointly by both the FDIC and the Federal Reserve Board. If they consider it not credible, a G-SIB is notified about the discovered deficiencies and obliged to submit a revised version.[207] All institutions submitting such plans receive feedback letters (regardless of whether resubmission is required or not). If a G-SIB does not comply with the resubmission order, or if the resubmitted plan does not address the discovered deficiencies, the agencies can 'subject it to more stringent capital, leverage, or liquidity requirements, or restrictions on the growth, activities, or operations'.[208] At a further stage, agencies are actually entitled to break up the non-compliant bank.[209] Thus, this review process grants substantial competences for supervisors to interfere with a G-SIB's resolution planning and to actually shape their operations.

203 Mark McDermott, 'Analysis of the Orderly Liquidation Authority, Title II of the Dodd-Frank Wall Street Reform and Consumer Protection Act', *Skadden Newsletter,* https://files.skadden.com/newsletters%2Ffsr_a_analysis_orderly_liquidation_authority.pdf, accessed 14 December 2021. For some critical voices on OLA see Coffee Jr. et al., 'Roundtable', p. 310; Bernanke, Geithner, Paulson, *Firefighting*, pp. 121, 127. For the proposal to add a resolution regime for financial conglomerates as a new Chapter 14 to the Bankruptcy Code see Michael Barr, Howell Jackson, Margaret Tahyar, *Financial Regulation Law and Policy*, West Academic, 2018, p. 1007.

204 Also non-bank SIFIs designated by the FSOC.

205 12 CFR § 243.4.

206 See for instance Bank of America, '2019 Resolution Plan Submission. Public Executive Summary', www.federalreserve.gov/supervisionreg/resolution-plans/boa-1g-20190701.pdf, accessed 14 December 2021.

207 12 CFR § 243.8.

208 12 CFR § 243.9 (a).

209 12 CFR § 243.9 (c) and see Lee Reiners, 'Using Living Wills to Break Up Big Banks', *The FinRegBlog Duke University School of Law*, 11 October 2016, https://sites.law.duke.edu/thefinregblog/2016/10/11/break-up-the-banks-but-how/, accessed 13 December 2021.

As for the implementation of the FSB's TLAC, US lawmakers were very quick to include these rules in the American legal framework. Already in December 2016 the Federal Reserve finalized the TLAC rules.[210] As in the FSB's standards, the TLAC requirement applies only to G-SIBs. It was decided to adopt the final higher level of TLAC – the greater of 18% of the G-SIB's RWAs and even 7.5% of the G-SIB's total leverage exposure.[211] According to these provisions, TLAC's amount is the sum of CET1, Additional Tier 1 (both constitute an excess over the minimum going concern capital requirements), and long-term debt (LTD). Apart from this TLAC requirement resembling the FSB's standard, the Federal Reserve added two more buffers: the TLAC RWA buffer and the TLAC leverage buffer.[212] Those two additional thresholds are intended to incentivize G-SIBs to hold even more TLAC, as the consequence of their breach is limitation on payouts. The exact levels are dependent on the G-SIB surcharge and the G-SIB supplementary leverage ratio respectively. This is the only aspect of TLAC that can be perceived as somehow resembling the individual character of a given G-SIB, even though as explained above the calibration of such a surcharge and leverage ratio is still based on a flawed designation process. Except for these buffers, US lawmakers ignored the FSB's recommendation to set TLAC individually on a firm-by-firm basis. No discretion regarding the level of TLAC has been granted to the supervisors. Even in the context of a potential breach of the TLAC leverage and RWA buffer, the consequences are predetermined in the regulation – for a given size of breach, a detailed limit on the payout ratio is prescribed.[213]

While the implementation of the FSB's Key Attributes on RRPs and the TLAC standard is tangible and really interferes with G-SIBs' operations in order to make them resolvable, the remaining aspects of the Key Attributes, such as the establishment of CMGs for each entity or institution-specific agreements between supervisors, seem to be more in the shadow. We can read in the minutes from hearings before the Senate Committee on Banking, Housing, and Urban Affairs[214] that under the wings of the FSB, Crisis Management Groups have been established for each of the designated G-SIBs. A recent FSB resolution report[215] confirms the existence of CMGs for all the G-SIBs, and 'Good Practices for CMGs'[216] were published recently. However, no list of such groups or specific reports of their activity are available. References in the press in that regard are also rather

210 12 CFR § 252.63.

211 12 CFR § 252.63 (a).

212 12 CFR § 252.63 (c).

213 Table 1 of 12 CFR § 252.63.

214 International Harmonization of Wall Street Reform, Orderly Liquidation, Derivatives, and the Volcker Rule: Hearing Before the Committee on Banking, Housing, and Urban Affairs, United States Senate, One Hundred Twelfth Congress, Second Session, 22 March 2012, https://play.google.com/books/reader?id=l8ZIAQAAMAAJ&hl=en_GB&pg=GBS.PP10, accessed 13 December 2021, p. 53.

215 FSB, 'Resolution Report', p. 6.

216 FSB, 'Good Practices for Crisis Management Groups', 30 November 2021.

vague.[217] On the other hand, Martin Gruenberg, former chairman of the FDIC, reported that the FDIC actively participates in many CMG meetings and also hosts some for US G-SIBs. Ways to improve the effectiveness of cross-border resolution were reportedly discussed during these gatherings.[218] As for the institution-specific agreements, the SEC published on its website the framework cooperation arrangement between the EU EBA and the Fed, FDIC, SEC, OCC, and NY State Department of Financial Services.[219] Its provisions are very general and set the stage for further cooperation. In any case, US international cooperation regarding resolution, be it within CMGs or in the form of agreements, will always be problematic, given the fragmentation of the American supervisory landscape.[220]

3.6.2.2 EU

The EU resolution framework consists of two important legal acts: the recently amended Bank Recovery and Resolution Directive (BRRD)[221] and the Single Resolution Mechanism Regulation (SRMR).[222] While in the USA the Federal Reserve and FDIC play first fiddle as American resolution authorities, the BRRD orders Member States to establish national resolution authorities (NRAs).[223] However, in the context of EU G-SIBs, the Single Resolution Board (SRB) is the decision-making body. As all of them are based in Member States participating in the SSM and hence are supervised by the supervisory arm of the ECB,[224] also their resolution is controlled at the centralized level.[225] This is particularly relevant in the context of the implementation of the FSB's RRPs and the resolvability assessment.

In contrast to US living wills, which encompass elements of both recovery and resolution plans and are originally drafted by the G-SIBs, the EU framework distinguishes between these two types of plans and tasks different entities with drafting them. Following the recommendations of the FSB, G-SIBs draft recovery plans, and the SRB along with NRAs prepare resolution plans.[226] Importantly, the RRP requirements are imposed on G-SIBs not on the basis of the EU G-SII

217 Brooke Masters, 'Crisis Management Groups to Aid World Banks', *Financial Times*, 20 June 2012.

218 International Harmonization, p. 54.

219 EBA, Federal Reserve, FDIC, OCC, SEC, New York State Department of Financial Services, 'Framework Cooperation Arrangement', September 2017, www.sec.gov/about/offices/oia/oia_bilateral/eba-framework-cooperation-arrangement-sep17.pdf, accessed 13 December 2021.

220 See Section 3.1.2.1.

221 Directive 2014/59/EU, OJ L 173, 12 June 2014. In this analysis I will refer to the latest version of BRRD, including the recent amendment (Directive (EU) 2019/879, OJ L 150, 7 June 2019).

222 Regulation (EU) No 806/2014, OJ L 225, 30 July 2014.

223 Art. 3(1) BRRD.

224 More on the supervisory agencies and their competences in the Section 3.1.2.2.

225 Art. 7(2) SRMR in connection with Art. 6(4)(5) SSM Regulation.

226 Within the initiative called Internal Resolution Teams.

designation but according to an identification method allowing it to be determined which entity is supervised by the ECB.[227] Fortunately, all EU G-SIBs, as designated, are encompassed by the RRP requirement.[228]

In general, the required content of EU recovery plans closely resembles the FSB and US provisions. For instance, it has to cover information on governance, strategic analysis for recovery options, number of entities involved, and internal exposures and links between them.[229] However, the BRRD also requires banks drafting recovery plans to include a set of qualitative and quantitative recovery indicators that shall 'identify the points at which appropriate actions referred to in the plan may be taken'.[230] The EBA created a minimum list of such indicators.[231] This list encompasses aspects of capital, liquidity, profitability, and asset quality. Additionally, banks are encouraged to take into account market-based and macroeconomic aspects. To some extent, this move constitutes acknowledgment of the individual character of EU credit institutions. On the other hand, it highlights by means of contrast how modest and insufficient the G-SII designation framework is. EU G-SIBs also take the indicators relatively lightly. The 2018 ECB Report[232] shows that they do not consider even some of the mandatory indicators – most neglected are liquidity measures of the net stable funding ratio and the cost of wholesale funding, as well as the asset quality indicator of the non-performing loans (NPLs) growth rate. This avoidance strategy could suggest that these are the most unstable areas of G-SIBs' operations, and yet all of them remain left out of the designation framework.

Tendencies of banks to neglect the recovery planning requirements increase the need for a proper review and assessment of these documents. Recovery plans should be reviewed at least annually, without differentiation according to the type of institution, as it is prescribed in the USA. The main assessment of the plan, whether it can 'maintain or restore the viability and financial position'[233] and can be 'implemented quickly and effectively'[234] is conducted by the supervisory authority. The resolution agency assesses it only from the perspective of potential

227 Art. 4(10) BRRD and Art. 6(4) SSMR. This was analyzed in more detail in Section 3.1.2.2, but it is worth mentioning that it relies on a narrower set of indicators than the G-SII methodology and so the duty is imposed on more entities, not just on G-SIIs.

228 Art. 4(10) BRRD.

229 Detailed content of the recovery plans has been prescribed by the EBA, 'Regulatory Technical Standards on the content of recovery plans', EBA/RTS/2014/11, 18 July 2014; and adopted in the Commission Delegated Regulation (EU) 2016/1075, OJ L 184, 8 July 2016.

230 Art. 9(1) BRRD.

231 First version of the list was published in 2015. See EBA, 'Final Report. Guidelines on the minimum list of qualitative and quantitative recovery plan indicators', 6 May 2015. Recently, EBA amended this list and added liquidity position, MREL/TLAC, and available central-bank eligible unencumbered assets as indicators. See EBA, 'Final Report. Guidelines on recovery plan indicators under Article 9 of Directive 2014/59/EU', 9 November 2021.

232 ECB, 'Report on recovery plans', July 2018, p. 24.

233 Art. 6(2)(a) BRRD.

234 Art. 6(2)(b) BRRD.

interference with resolvability.[235] It is noticeable that EU G-SIBs are not distinguished in the provisions on the process of the recovery plan assessment in any way; no stricter deadlines or content provisions apply to them. Only Article 21 of Commission Regulation 2016/1075 requires the supervisor to take into account the institution's nature, size, and interconnectedness when assessing the 'overall credibility' of the recovery plan. This is practically the only way the systemic character of entities is addressed in the recovery and resolution planning framework. If deficiencies are discovered in the recovery plan, the institution has to resubmit it. If it fails to do so properly, then it is required to identify changes that would allow it to address deficiencies (this is one more stage of the plan correction process than in the USA).[236] Only if it fails to do so may the supervisor 'direct the institution to take any measures it considers to be necessary and proportionate'.[237] Even though such measures are listed, it still gives broad discretion to the authorities and to national regulators implementing said provision.[238]

Resolution planning in the EU is a bit less complicated, due to the fact that it does not include the resubmission procedure present in the context of recovery plans – the resolution authority, after consultations with supervisors and the resolution authorities of significant branches, draws up an individual resolution plan for each institution subject to RRP requirements.[239] However, such a plan shall include a resolvability assessment,[240] and the resolution authority is required to review it at least annually. When impediments to resolvability are defined, it notifies the institution in question, and the latter shall present a plan to address them. If the proposed measures do not effectively reduce these impediments, the resolution authority shall require it to take alternative measures, including for instance revision of intragroup agreements, limiting exposures and specific activities, and even the divestiture of specific assets.[241]

When it comes to the EU implementation of TLAC, lawmakers acted faster than the FSB. They included a relatively similar standard already in the BRRD, even before the global adoption of the FSB's TLAC standards. This minimum requirement for own funds and eligible liabilities (MREL) is determined by the resolution authority[242] for each institution individually.[243] Even though this requirement is applied to all institutions within the scope of the BRRD, and not only to G-SIBs as in the case of TLAC, it actually implemented the FSB's

235 Art. 6(4) BRRD.
236 Art. 6(5)(6) BRRD.
237 Art. 6(6) BRRD.
238 Ibid.
239 Art. 10 BRRD.
240 For an analysis of the assessment of impediments process see Alexander Lehman, 'Impediments to resolvability of Banks. Banking Union scrutiny', Analysis for European Parliament, December 2019, www.bruegel.org/wp-content/uploads/2019/12/IPOL_IDA2019634360_EN.pdf, accessed 13 December 2021.
241 Art. 17 BRRD.
242 After consulting the supervisor.
243 Art. 45 and 45c BRRD.

TLAC-related recommendation to set the level on a firm-by-firm basis. However, after the TLAC standard was adopted by the FSB, the EU legislators decided to add a 'G-SIB-specific MREL' to the Capital Requirements Regulation (CRR). It is now prescribed by Article 92a of CRR and sets the uniform MREL threshold for G-SIIs. It exactly resembles the FSB's recommendation: 18% of RWAs and 6.75% of total exposure,[244] but the BRRD provides for flexibility for resolution authority, allowing it to determine 'any additional requirement' above this level.[245]

In the context of consequences of breaches of the MREL requirement, wide discretion is granted to the relevant resolution or supervisory authorities. Namely, they can use powers conferred on them to remove impediments to resolvability (for instance divestiture, limit on exposures, limit on activities, revision of any intragroup financial agreements), distribution limitations, the whole range of supervisory measures listed in Article 104 of CRD, and early intervention measures and administrative penalties.[246] This is arguably the broadest spectrum of legal consequences in the whole of the EU bank regulatory regime. A breach of MREL triggers competences to vastly interfere with the bank's operations, and these powers are prevailingly of a preventive, not resolution-related, character.[247]

Lastly, due to the specific supranational character of the EU, the FSB recommendation for the creation of Crisis Management Groups has been implemented much more formally than in the USA. CMGs exist in the EU in two forms: as general CMGs gathering resolution authorities, supervisory authorities, central banks and finance ministers[248] and in the form of resolution colleges, led by the group-level resolution authority and consisting of the resolution authorities of the Member States where the given banking group operates. These colleges fulfil the typical resolution tasks but in regard to resolution of a group. Thus, they are responsible for group resolution plans, assessment of impediments to the resolvability of the group, and potential remedies for impediments.[249] These aspects are usually described in a resolution scheme, an EU version of an institution-specific agreement between authorities.[250] They also coordinate cooperation with third-country resolution authorities, if necessary. In that context, the resolution authorities of Member States where a third-country subsidiary, Union parent undertaking, or significant branch is active should also establish a European resolution college in order to cooperate with third-country resolution authorities. Apart from that,

244 Art. 494 BRRD introduced lower thresholds (16% and 6% respectively) for the period until 31 December 2021.

245 Art. 45d(1)(b) BRRD.

246 Art. 45k BRRD.

247 See Edoardo Martino, Katarzyna Parchimowicz, 'Go preventive or go home – The double nature of MREL', *European Company and Financial Law Review*, 2021, 18/4.

248 ECB, 'Crisis Management', www.bankingsupervision.europa.eu/banking/approach/crisis/html/index.en.html, accessed 13 December 2021.

249 Art. 88 BRRD.

250 Art. 88, 91, 92 BRRD.

in the context of G-SIBs, the most relevant collaboration is established with the US federal supervisory agencies, even though it is much less formalized than the BRRD provisions. In addition to framework cooperation arrangements like the one mentioned above, resolution and supervisory authorities also organize meetings with the aim to 'enhance understanding of one another's resolution regimes for global systemically important banks and strengthen coordination on cross-border resolution.'[251]

3.7 Pillar 2 powers

Apart from the institutional supervisory framework for G-SIBs,[252] Pillar 2 provisions and standards have also profoundly changed. One should look at the supervisory material provisions from two perspectives – first, through the lens of Pillar 2 measures in a strict sense, including stress testing supporting the framework, and second, from the general view of supervisory powers and discretion that have been regularly spotted in the context of the G-SIB-specific material provisions above. The latter measures will only be summarized below, as they have been extensively described throughout the whole chapter.

3.7.1 International level

Apart from the institutional novelties, such as the creation of the FSB, new material standards have been adopted at the international level. These material rules can be divided into the two groups mentioned above: Pillar 2 in a narrow sense, so encompassing the supervisory review process (mostly conducted using stress testing) in the context of capital and liquidity, and general standards for supervisory actions, including ex ante powers and other areas of banking functioning, beyond capital and liquidity. [253]

The Pillar 2 concept was introduced already in the Basel II framework. The current version does not vary vastly from the original. It seems, however, that the level of implementation is much higher in general. The Pillar 2 framework consists of four principles describing 'the supervisory review process to make sure a

251 The last session of this sort took place in Washington DC in 2019 and gathered officials from the American side: US Department of the Treasury, the Board of Governors of the Federal Reserve System, OCC, SEC, CFTC, and the Federal Reserve Bank of New York; from the EU: SRB, EC, and ECB, as well as from the UK: HM Treasury, BoE, and PRA. See FDIC, 'U.S., European Banking Union, and UK officials meet for planned coordination exercise on cross-border resolution planning', Press Release, 9 April 2019, www.fdic.gov/news/press-releases/2019/pr19033.html, accessed 13 December 2021.

252 See Section 3.1.

253 The Pillar 2 concept is based on the premise of a supervisory review of capital and liquidity and action, once some deficiencies are spotted. However, supervisors can sometimes act *ex ante*, or they are granted powers regarding different aspects of bank functioning, reaching beyond capital and liquidity.

bank's capital and liquid asset holdings are adequate, given its risk profile'.[254] The first principle requires banks to set the internal capital adequacy assessment process (ICAAP), which supervisors should review (principle 2). They also ought to expect banks to hold more capital than the required minima (principle 3) and are supposed to intervene to prevent capital from falling below levels adequate for its risk profile (principle 4). This framework creates room for significant supervisory discretion. The BCBS stresses that national lawmakers are not constrained in any particular way; they can adjust the Pillar 2 regime accordingly to specific features of their jurisdictions and individual banks. However, a principle-based approach is advised.[255]

Stress testing, the aspect that constitutes, alongside ICAAP (or as a part of it), one of the most relevant Pillar 2 mechanisms, was also expanded after the crisis. The BCBS Principles for stress testing have been updated twice since the GFC – in 2009[256] as an immediate reaction to the unfolding downturn, and in 2018. The more recent update openly refers to 'large, internationally active banks'.[257] However, the principles remain very general, and, in contrast to other BCBS documents, they are supposed to be considered as guidelines, not standards requiring implementation. This leaves a lot of freedom in national implementation. Two main aspects can be derived from this framework, though. First, it is clear that the BCBS advises turning stress tests into a universal mechanism, used for many supervisory assessments and actions, not only limited to capital and liquidity.[258] It mirrors the progress in the stress-testing scheme, which is slowly starting to function as a stand-alone tool, even in slight separation from the Pillar 2 framework. Second, stress-testing regimes, which originally maintained a very microprudential focus, are now expected to consider a macroprudential perspective. The BCBS underlines in its Principles that authorities should use the tests' outcomes for macroprudential purposes[259] and, even more importantly, that vulnerabilities of the whole banking system should be taken into account in the process of scenario development.[260]

As for the general perspective on banking supervision, even before the BCBS designation methodology for G-SIBs was published, the FSB adopted the recommendations set out in the report 'Intensity and Effectiveness of SIFI Supervision. Recommendations for enhanced supervision'.[261] These are mostly amendments to the Basel Core Principles for Effective Supervision of 2006. However,

254 BIS, 'Pillar 2 Framework – Executive Summary', www.bis.org/fsi/fsisummaries/pillar2.pdf, accessed 13 December 2021, p. 1.

255 Ibid.

256 BCBS, 'Principles for sound stress testing practices and supervision', May 2009.

257 BCBS, 'Stress testing principles', October 2018, p. 1.

258 Ibid, p. 5.

259 BCBS, 'Stress testing principles', October 2018, p. 5.

260 Ibid, p. 6.

261 FSB, 'Intensity and Effectiveness of SIFI Supervision. Recommendations for enhanced supervision', 2 November 2010.

this document stresses repeatedly how different G-SIBs are, in terms of their risk profile and other features. The FSB openly states that 'it is impossible to solely rely on a one-size-fits-all minimum requirement'.[262] The recommendations included in the FSB's SIFI supervision report are taken into account in the BCBS's updated Core Principles for Effective Banking Supervision.[263] However, the BCBS refused to create a Core Principle for G-SIBs by stating simply that the rules apply to all banks and 'expectations on, and of, supervisors will need to be of a higher order for SIBs, commensurate with the risk profile and systemic importance of these banks'.[264] Supervisory discretion in that regard is advocated very vividly in two Core Principles. First, Principle No. 1 on responsibilities, objectives, and powers states in its criteria section that the supervisor should be able to increase prudential requirements for individual banks due to their risk profile and systemic importance.[265] Second, Principle No. 8 underlines the need to create a forward-looking profile for individual banks, according to their systemic importance, and address the created risk on an ongoing basis.[266] This global overarching framework of supervisory standards generally recommends granting vast discretion to the supervisors and explicitly advocates individual treatment of institutions. This broad advice is reflected in the FSB's direct discretion in the context of G-SIB designation and in the BCBS's and FSB's rules that advocate for supervisory judgment in almost all aspects of G-SIB regulation (see Table 3.6).

3.7.2 Regional level

Given the relatively general recommendations issued by the FSB and BCBS in the context of G-SIB supervision, regional lawmakers had more freedom than in the case of the implementation of simple standards such as leverage or large exposure limits. Therefore, they chose different models of Pillar 2 powers[267] or stress-testing strategies. More discretion was granted to the supervisors both in the USA and in the EU.

3.7.2.1 USA

The core of the US post-crisis supervisory reform and biggest improvement should be seen in powers supervisors received, both in the narrower aspect of Pillar 2, and regarding general G-SIB-oriented rules.

262 Ibid, p. 1.
263 Original version was published in 2006, the new post-crisis one in 2012. See BCBS, 'Core principles for effective banking supervision', September 2012 (Basel Core Principles).
264 BCBS, 'Core Principles', p. 5.
265 Ibid, pp. 20–21.
266 Ibid, p. 29.
267 BCBS, 'Overview of Pillar 2 supervisory review practices and approaches', June 2019.

Regarding Pillar 2 there are two main assessment paths that could trigger supervisory action: the official rating system and stress tests. Only recently, the Federal Reserve replaced the RFI rating scheme,[268] arbitrarily encompassing all BHCs regardless of their size, with the Large Financial Institution (LFI) rating.[269] This applies to BHCs and savings and loan holding companies with total consolidated assets of $100 billion or more,[270] and is aimed mainly at entities covered by the LISCC program.[271] An assessment resulting in a low LFI rating could trigger enforcement action, but the grades are confidential and no supervisory activity in this regard has been reported.

Stress tests constitute arguably the most relevant supervisory tool introduced post-crisis in the USA. After the success of the initial Supervisory Capital Assessment Program (SCAP) conducted in early 2009,[272] two stress-testing exercises were introduced into the US legal framework.[273] Both apply to a broader group of banking institutions than just G-SIBs,[274] but it is the G-SIBs that are required to go through these tests most frequently and undeniably their results have the biggest impact on their operations. The first of the exercises, the Fed-run Comprehensive Capital Analysis and Review (CCAR), could be perceived as the implementation of Pillar 2 principles. It confronts capital levels and capital planning of banking entities with several adverse economic scenarios. These include for instance a drop in the real GDP growth rate and a rise in the unemployment rate. The assessment under CCAR is conducted from quantitative and qualitative perspectives. The former essentially estimates whether a given institution's capital ratios will fall below minimum requirements in each of the prescribed scenarios. In contrast, the qualitative assessment examines the internal processes of capital management in times of crisis. Originally, if the Federal Reserve objected to a bank's capital plan on any of the two grounds, the institution was not able to pay out dividends and buy back shares, unless approved by the Fed. Second, the Dodd–Frank Act Stress Test (DFAST) differs slightly from CCAR. Even though it is also orchestrated by the Fed and relies on similar scenarios,[275] it does not take

268 See Section 2.1.1.

269 Sullivan and Cromwell LLP, 'New Supervisory Rating System for Large Banking Organizations', *Compliance and Enforcement Blog of NYU School of Law*, 6 November 2018, https://wp.nyu.edu/compliance_enforcement/2018/11/06/new-supervisory-rating-system-for-large-banking-organizations/#_edn2, accessed 13 December 2021.

270 It applies also to US intermediate holding companies of foreign banking organizations with total consolidated assets of $50 billion or more.

271 See Section 3.1.2.1.

272 See Section 2.3.1.

273 Federal Reserve Board can also conduct ad-hoc sensitivity analyses, as it did in light of the coronavirus event. See Federal Reserve, 'Federal Reserve Board releases results of stress tests for 2020 and additional sensitivity analyses conducted in light of the coronavirus event', Press Release, 25 June 2020, www.federalreserve.gov/newsevents/pressreleases/bcreg20200625c.htm, accessed 13 December 2021.

274 All banking organizations over $10 billion in assets have to undergo some sort of stress test.

275 Federal Reserve, 'Stress Tests and Capital Planning', www.federalreserve.gov/supervisionreg/stress-tests-capital-planning.htm, accessed 13 December 2021.

into account a bank's actual capital management plan, only its standard version (for instance without change in dividend payouts from year to year).[276] Further, the DFAST includes only a quantitative component. Also, no limits on capital distributions can be imposed on the banks as a result of a poor score in the DFAST.

Stress testing has widely been praised as a great success of the Fed.[277] It forced especially the G-SIBs to hold more capital, and these entities take it very seriously, spending staggering sums on compliance every year.[278] However, there are two main concerns regarding stress tests and their future. First, even though the exercise seems highly individualized, the Federal Reserve's scenarios include 'typical bank behavior' and they apply consistent assumptions to all the banks – the only individual aspect remaining is the data provided by the entities. Given the G-SIBs' different modes of operations both in normal times[279] and under stress,[280] it seems inadequate. Also, no truly macroprudential assessment is conducted – in the end the results reflect the resilience of each institution without consideration of the others.

The second issue is more complex. For several years now, we have been observing a process of the slow nullification of the harsh and effective character of the stress-test regime. Bloomberg estimates that the tests are actually becoming easier every year, given that the combined calculated losses are lower.[281] Also, the Fed largely dismantled the CCAR qualitative requirement by first exempting a large group of banks from it,[282] and second by eliminating the option for 'qualitative objection'.[283] Additionally, it started to release the models to be used in the process,[284] so actually bowed to the pressure of the banking industry for

276 John Heltman, 'Banks Sail Through Year's First Round of Stress Tests', *American Banker*, 21 June 2019.

277 See for instance Ben Bernanke, 'Stress testing banks – what have we learned?', Speech at the 'Maintaining financial stability: holding a tiger by the tail' Financial Markets Conference, 8 April 2013, www.bis.org/review/r130409c.pdf, accessed 13 December 2021.

278 Christian Thun, 'Are Regulatory Stress Tests Just Cost Without Value?', *Moody's Analytics*, September 2013, www.moodysanalytics.com/risk-perspectives-magazine/stress-testing-europe/rethinking-stress-testing/are-regulatory-stress-tests-just-cost-without-value, accessed 14 December 2021; Ryan Tracy, 'Stress Test Inc.: Billions of Dollars, Bank Consultants to Manage Other Consultants', *The Wall Street Journal*, 28 June 2016.

279 See Chapter 1.

280 See Chapter 2.

281 Mark Whitehouse, 'The Problem with Stress Tests', *Bloomberg*, 18 June 2019.

282 Federal Reserve, 'Federal Reserve Board announces finalized stress testing rules removing non-complex firms from qualitative aspect of CCAR effective for 2017', Press Release, 30 January 2017, www.federalreserve.gov/newsevents/pressreleases/bcreg20170130a.htm, accessed 14 December 2021.

283 Federal Reserve, 'Federal Reserve Board announces it will limit the use of the "qualitative objection" in its Comprehensive Capital Analysis and Review (CCAR) exercise, effective for the 2019 cycle', Press Release, 6 March 2019, www.federalreserve.gov/newsevents/pressreleases/bcreg20190306b.htm, accessed 14 December 2021.

284 Federal Reserve, 'Federal Reserve Board releases document providing additional information on its stress testing program', Press Release, 28 March 2019, www.federalreserve.gov/newsevents/pressreleases/bcreg20190328a.htm, accessed 14 December 2021.

more transparency. Before, the supervisor argued that keeping it from the banks prevents them from gaming the tests. Recently, the Fed gave up on the whole 'objection' procedure, which actually disciplined banks by sending negative signals about them to the markets. Now, no entity can 'fail' the test; instead, the results of CCAR are incorporated in the capital requirements framework as a stress capital buffer (SCB).[285] Its level should be based on losses incurred in the severely adverse scenario, but it cannot be lower than 2.5% (so the level of the capital conservation buffer that this requirement replaces). No explicit supervisory discretion is granted regarding setting this buffer, as its final level depends on the above-mentioned losses calculation. Even though the SCB is supposed to simplify the framework and somehow combine Pillar 1 requirements with Pillar 2 review, the lack of a clear message about which banks failed and which passed the CCAR assessment certainly lowers the effectiveness of the tests. One could argue that the disclosed SCB levels should indicate the resilience of a given G-SIB to the market, but such complex assessments translated into buffer level will never have a comparable impact to the 'fail/pass' evaluation. It was already noticeable in the context of the first SCB exercise. Namely, only three out of eight US G-SIBs had their SCB buffers imposed on a level exceeding the minimum 2.5%, which could indicate that five US G-SIBs are identical in terms of resilience.[286]

Even though the stress tests play a very important role in the supervisory framework for G-SIBs, the authorities have also been granted much more discretion regarding some more prudential regulatory aspects. The Fed has powers to influence the designation of a G-SIB, its G-SIB surcharge, and leverage ratio add-on, and also has a say in terms of large exposure exemptions. Additionally, vast competences have been granted to the Fed and FDIC in the context of resolution, up to actually breaking up a bank that is not able to produce a credible resolution plan.[287] It seems like supervisors have much more real influence on the operations of individual G-SIBs, and not only in the strictly Pillar 2-related context (Table 3.6).

3.7.2.2 EU

Because of the national/EU dualism implanted in the functioning of EU banking law, Pillar 2 powers and stress testing function on several different levels.

285 It replaces the 'static' element of 2.5% of the capital conservation buffer. See Federal Reserve, 'Federal Reserve Board approves rule to simplify its capital rules for large banks, preserving the strong capital requirements already in place', Press Release, 4 March 2020, www.federalreserve.gov/newsevents/pressreleases/bcreg20200304a.htm, accessed 13 December 2021.

286 JP Morgan Chase, Goldman Sachs and Morgan Stanley constituted the three G-SIBs with higher SCB buffer. See Federal Reserve, 'Federal Reserve Board announces individual large bank capital requirements, which will be effective on October 1', Press Release, 10 August 2020, www.federalreserve.gov/newsevents/pressreleases/bcreg20200810a.htm, accessed 13 December 2021.

287 On that in the context of Wells Fargo see Reiners, 'Using Living Wills'.

Similarly to the USA, though, these competences expanded vastly in the context of G-SIBs and define their functioning.

Starting with stress tests at the EU level, the EBA conducts stress exercises every two years. It started this procedure in 2011 and continues it to this day. The sample of tested entities covers banks with a minimum of €30 billion in assets, so all the EU G-SIBs and other large institutions.[288] The EBA's stress tests represent a bottom-up approach – the authority provides entities with the methodology and scenarios and after the banks 'test' themselves, it reviews the scores.[289] Normally, banks know about the intention of stress testing in advance and also receive the methodologies relatively early on. In 2016, the EBA gave up on the 'pass/fail' threshold. Also in this round of testing, it issued recommendations on how the results could be utilized in microprudential supervision. Namely, supervisors were encouraged to formulate 'capital guidance' according to the resilience shown in the exercise.[290]

Apart from the Union-wide tests conducted by the EBA, the relevant competent authorities are obliged by the CRD to carry out annual tests for institutions under their supervision.[291] One could wonder about the factual influence of these exercises on banks, given the lack of a 'pass/fail' announcement. However, the tests conducted by the EBA and the ones performed by EU G-SIBs' primary supervisor – the ECB – constitute a crucial part of the main EU Pillar 2 tool – the Supervisory Review and Evaluation Process (SREP).[292]

The SREP is carried out both for SI and LSIs, but for the purpose of this book the focus will remain on the SREP for SIs, as it covers EU G-SIBs. Success of this yearly evaluation vastly depends on cooperation between supervisors – apart from the ECB and the Joint Supervisory Teams (JSTs), also supervisory colleges for each institution are involved. The functioning of banks is reviewed in four main areas: business model and profitability, internal governance and risk management, risks to capital, and risks to liquidity and funding. The SREP is hence very comprehensive, touching upon almost all aspects of a bank's functioning, apart from the macroprudential perspective. The assessment of each area is divided into three phases. Data gathering is followed by the calculation of an automated anchoring score (based on gathered information) and then the supervisor looks closer into the results 'taking into account supervisory judgement

288 EBA, '2021 EU-Wide Stress Test. Methodological Note', 13 November 2020, p. 13.

289 As shown in the announcement of new methodology; see EBA, 'EBA publishes the methodology for the 2021 EU-wide stress test', Press Release, 13 November 2020, www.eba.europa.eu/eba-publishes-methodology-2021-eu-wide-stress-test, accessed 13 December 2021.

290 EBA, 'EBA clarifies use of 2016 EU-wide stress test results in the SREP process', Press Release, 1 July 2016, https://eba.europa.eu/eba-clarifies-use-of-2016-eu-wide-stress-test-results-in-the-srep-process, accessed 13 December 2021.

291 Art. 100 CRD. EBA is tasked with monitoring these procedures.

292 Art. 97 CRD. SREP constitutes SSM's measure fulfilling the requirement from that article.

considering the specificities of the bank'.[293] Consequently, the supervisory authority has the last word. Even though the SREP introduces a 'constrained judgment' approach, which means that the ECB (JST) can change the anchoring score only to some extent, the fact that supervisors make the final assessment in all four areas opens the door for a more individualized approach towards EU G-SIBs. Especially the vague guidance to look at 'specificities of a bank' leaves room for discretion. Finally, the SREP is concluded by sending an individual decision to each assessed bank. Such a decision may include requirements aiming at improving a given entity's resilience. Namely, it defines Total SREP Capital Requirement (TSCR) composed of Pillar 1 minimum own fund requirements (8%) and an additional Pillar 2 Requirement (P2R).[294] P2R has to be met entirely by CET1 capital,[295] and its breach results in automatic limits on distributions. In this way the minimum level of capital is determined by the supervisors on a firm-by-firm basis. After the last SREP, the P2R levels for G-SIBs were set between 2.5% (Deutsche Bank) and 1.25% (BNP Paribas).[296] However, the fact that several very different banks (BPCE, ING, SocGen, and Unicredit) are required to hold the same P2R of 1.75% could raise questions about the individual aspect of this exercise. Apart from capital, the SREP decision may also include institution-specific liquidity measures, such as a higher liquidity coverage ratio. Further, it may also prescribe other qualitative supervisory measures stemming from Art. 16(2) of the SSM Regulation. This catalogue of competences is very far-reaching and intrusive, including measures from enhanced disclosure up to limitation of business or divestment of risky activities. It grants crucial powers to the ECB in its capacity as the G-SIB supervisor. Lastly, the SREP decision also prescribes Pillar 2 Guidance (P2G), a capital threshold to be met with CET1 on top of all capital minima and combined buffer requirements. This is more an encouragement to hold more capital, as its breach does not trigger automatic distribution limits.

Similar to the US peers, apart from the broad Pillar 2 discretion granted under SREP, G-SIB supervisors in the EU also have many competences described in the

293 ECB, 'Supervisory methodology', www.bankingsupervision.europa.eu/banking/srep/2021/html/ssm.srep202101_supervisorymethodology2021.en.html, accessed 13 December 2021, point 1.1.

294 It also includes combined buffer requirements but does not set their levels.

295 In light of the COVID pandemic, the ECB temporarily allowed banks to use capital instruments that do not qualify as Common Equity Tier 1 (CET1) capital. See ECB, 'ECB Banking Supervision provides temporary capital and operational relief in reaction to coronavirus', Press Release, 12 March 2020, www.bankingsupervision.europa.eu/press/pr/date/2020/html/ssm.pr200312~43351ac3ac.en.html, accessed 13 December 2021. Composition of Pillar 2 requirements could also be changed by the recent proposal of EC granting discretion to supervisors allowing them to prescribe the share of CET 1 and Tier 1 capital. See Proposal for a Directive of the European Parliament and of the Council, COM(2021) 663 final.

296 ECB, 'Pillar 2 Requirement 2020', 28 January 2021, www.bankingsupervision.europa.eu/banking/srep/html/p2r.en.html, accessed 13 December 2021.

sections above, including influence on the G-SII buffer, leverage add-on, as well as resolvability and MREL (Table 3.6).

3.8 Summary

The Global Financial Crisis revealed two significant flaws in the regulation of G-SIBs that urgently needed fixing. An overly general approach, not taking into account the specific features of G-SIBs and their systemic importance, combined with a lack of supervisory powers to overcome these omissions of material provisions, had disastrous consequences.

The post-crisis legal framework for G-SIBs demonstrates major progress in that respect. First, the mere existence of a G-SIB-oriented regime is a positive development, given the lack of such differentiation before. G-SIBs are not only designated but also grouped according to their systemic importance, and their required levels of capital and leverage ratio are contingent on this feature too. They undeniably hold more capital, and resolution planning is more detailed and forward-looking. Supervisors conduct regular stress tests on a firm-by-firm basis to spot the weakest points of each institution.

However, the degree of individualization is not sufficient. For instance in the context of bucket allocation, which both capital and allowed leverage levels are dependent on, extremely diverse G-SIBs are placed together, indicating that they pose the same systemic threat. In the context of large exposures, individualization is non-existent. Even stress tests, seemingly assessing the resilience of individual institutions, are based on general scenarios, not taking into account the specific features of each G-SIB that could turn out to be crucial for their stable functioning in the event of a real crisis.

The unsatisfactory level of individualization in the material provisions can be rectified by the supervisory powers to adjust the rules accordingly. Supervisory discretion brings two benefits in this context. First, it constitutes a straightforward fix for the lack of supervisory powers and 'duct tape' approach during the financial crisis. Second, it creates a window of opportunity and encourages supervisors to take into account the individual character of G-SIBs, as it actually allows them to consider other features than those reflected in the designation methodology. Hence, supervisory discretion has been included in almost all areas of G-SIB regulation, both internationally and regionally (Table 3.6). Regulators are granted competences to change the bucket allocation, so also the G-SIB-specific capital buffer and leverage ratio, and they can influence resolution planning, even including interfering with the size of a given entity. Finally, they have the powers to shape Pillar 2 requirements based on the stress-testing process, which is also drafted by them. This array of competences to adjust G-SIBs' operations according to their specific features could mitigate the impact of the still too general material provisions. However, no discretion or power could repair such omissions if it is not used by the supervisory body that is equipped with it.

Table 3.5 Terminology related to systemically important entities

Term	*Definition*	*Basis*	*Features/Indicators*
D-SIBs Domestic Systemically Important Banks	Distress of a D-SIB poses systemic risk to the national financial system, within national borders	BCBS (BCBS, *Consultative document. A framework for dealing with domestic systemically important banks*, June 2012)	Size, interconnectedness, substitutability, and complexity within the domestic economy
G-SIBs Global Systemically Important Banks	A bank/banking group whose collapse would pose a serious risk to the economy as a whole due to its size, interconnectedness, cross-jurisdictional activity, substitutability/financial institution infrastructure, and complexity	BCBS/FSB (BCBS, *Global systemically important banks: assessment methodology and the additional loss absorbency requirement*, November 2011; FSBs G-SIB lists)	Size, interconnectedness, cross-jurisdictional activity, substitutability/financial institution infrastructure, and complexity
G-SIFIs Global Systemically Important Financial Institutions	Term confusingly used in the FSB's Policy Measures in the title of the first list of G-SIBs	FSB (FSB, *Policy Measures to Address Systemically Important Financial Institutions*, 4 November 2011)	
G-SIIs Global Systemically Important Insurers	Any insurers whose distress or disorderly failure, because of their size, complexity, and interconnectedness, would cause significant disruption to the global financial system and economic activity	IAIS/FSB (IAIS, *Global Systemically Important Insurers: Initial Assessment Methodology*, 18 July 2013*) * no longer in use	Size, complexity, interconnectedness

G-SIIs Global Systemically Important Institutions	EU parent institutions, EU parent financial holding companies or EU parent mixed financial holding companies or institutions which are identified as global systemically relevant on the basis of methodology construed by the EBA and EC, but closely resembling that of the BCBS	Art. 131 (1)(2) CRD, EBA guidelines, Commission Regulations: 1222/2014, 1030/2014	(a) Size of the group; (b) Interconnectedness of the group with the financial system; (c) Substitutability of the services or of the financial infrastructure provided by the group; (d) Complexity of the group; (e) Cross-border activity of the group, including cross-border activity between Member States and between a Member State and a third country.
LCFIs Large Complex Financial Institutions	Financial intermediaries engaged in some combination of commercial banking, investment banking, asset management, and insurance whose failure poses a systemic risk or externality to the financial system as a whole	Doctrine (Anthony Saunders, Roy Smith and Ingo Walter, 'Enhanced Regulation of Large Complex Financial Institutions' in Viral V. Acharya and Matthew Richardson (eds), *Restoring Financial Stability. How to Repair a Failed System,* Wiley Finance, NYU Stern School of Business, 2009)	Size, complexity, and systemic interconnectedness (Additionally: rate of asset growth)
NBNI G-SIFIs Non-Bank Non-Insurer Global Systemically Important Financial Institutions	Financial institutions whose distress or disorderly failure, because of their size, complexity, and systemic interconnectedness, would cause significant disruption to the wider financial system and economic activity at the global level	FSB (FSB, *Consultative Document (2nd) Assessment Methodologies for Identifying Non-Bank Non-Insurer Global Systemically Important Financial Institutions. Proposed High-Level Framework and Specific Methodologies*, 4 March 2015)	Size, complexity, interconnectedness, cross-border activity, substitutability

(*Continued*)

Table 3.5 (Continued)

Term	*Definition*	*Basis*	*Features/Indicators*
O-SIIs Other Systemically Important Institutions	EU parent institution, an EU parent financial holding company, an EU parent mixed financial holding company or an institution which are designated according to a pre-established methodology	Art. 131 (1)(3) CRD and EBA guidelines	At least any one of the following: (a) Size; (b) Importance for the economy of the Union or of the relevant Member State; (c) Significance of cross-border activities (d) Interconnectedness of the institution or group with the financial system.
SIBs Systemically Important Banks	Comprehensive term used mainly when referring to both G-SIBs and D-SIBs with the aim to stress the 'bank' feature		
SIFIs Systemically Important Financial Institutions	Their disorderly failure, because of their size, complexity, and systemic interconnectedness, would cause significant disruption to the wider financial system and economic activity	FSB (FSB, *Reducing the moral hazard posed by systemically important financial institutions, FSB Recommendations and Time Lines*, 20 October 2010)	Size, complexity, and systemic interconnectedness
	Banks with assets of more than $250 billion and non-banks designated by the FSOC	Used in the context of the Dodd–Frank Act (but not by the Act itself)	Size and FSOC assessment
SIs Significant Institutions	Defined only by indicators	Art. 6 SSM Regulation	The significance shall be assessed based on the following criteria: (i) Size; (ii) Importance for the economy of the Union or any participating Member State; (iii) Significance of cross-border activities. Additionally, it shall not be considered less significant, unless justified by particular circumstances to be specified in the methodology, if any of the following conditions is met:

			(i) The total value of its assets exceeds € 30 billion; (ii) The ratio of its total assets over the GDP of the participating Member State of establishment exceeds 20%, unless the total value of its assets is below € 5 billion; (iii) Following a notification by its national competent authority that it considers such an institution of significant relevance with regard to the domestic economy, the ECB takes a decision confirming such significance following a comprehensive assessment by the ECB, including a balance-sheet assessment, of that credit institution.
SSEs Significant Supervised Entities	Defined only by indicators	Art. 39 (3) SSM Framework Regulation	A supervised entity can be classified as a significant supervised entity on the basis of any of the following: 1 Its size; 2 Its importance for the economy of the Union or any participating Member State; 3 Its significance with regard to cross-border activities; 4 A request for or the receipt of direct public financial assistance from the European Stability Mechanism (ESM); 5 The fact that the supervised entity is one of the three most significant credit institutions in a participating Member State.

Table 3.6 Supervisory discretion built into G-SIB-oriented legal solutions

Legal areas	*Supervisory discretion*		
	International	*US*	*EU*
Designation / bucket allocation	• Direct supervisory discretion* on bucket allocation and designation – BCBS G-SIB Methodology 2018 point 35	• Direct supervisory discretion – 12 CFR § 217.400 (c)(1)	• Direct supervisory discretion (G-SIIs) – Art. 131 (10) CRD • Direct supervisory discretion (SIs) – Art. 6 (5)(b) SSMR
G-SIB buffer	• Indirect supervisory discretion** (derived from bucket allocation discretion) – BCBS G-SIB Methodology 2018 point 35 • Advocated direct supervisory discretion*** to increase prudential requirements – Principle No. 1 Basel Core Principles	• Direct supervisory discretion on the G-SIB buffer itself – 12 CFR § 217.400 (c)(2)	• Indirect supervisory discretion (derived from bucket allocation discretion) – Art. 131 (10) CRD
G-SIB leverage ratiov	• Indirect supervisory discretion (derived from bucket allocation discretion) – BCBS G-SIB Methodology 2018 point 35 • Advocated direct supervisory discretion to increase prudential requirements – Principle No. 1 Basel Core Principles	• None	• Indirect supervisory discretion (derived from bucket allocation discretion) – Art. 131 (10) CRD
Large exposure limit	• None	• Direct supervisory judgment in terms of exemptions, not levels – 12 CFR § 252.77(a)(6)	• None

Resolution planning	• Advocated direct supervisory discretion to require changes in business, structure, or organization (as a result of unsatisfactory resolvability assessment) – Attribute No. 10 of FSB's Key Attributes • Advocated direct supervisory discretion to draft resolution plan – Attribute No. 11 of FSB's Key Attributes • Advocated direct supervisory discretion to address deficiencies in recovery plans – Attribute No. 11 of FSB's Key Attributes	• Direct supervisory discretion to subject an entity to more stringent capital, leverage or liquidity requirements, or restrictions on the growth, activities or operations, up to breaking up the bank (as a result of failed resubmission of living will) – 12 CFR § 243.9	• Direct supervisory discretion to take any measures supervisor considers necessary and proportionate (as a result of failure to address deficiencies in recovery plan for a second time) – Art. 6, 8 BRRD • Direct supervisory discretion to require an entity to take measures reducing impediments to resolvability, up to divestiture – Art. 17, 18 BRRD
TLAC/MREL	• Advocated direct supervisory discretion to set TLAC on individual basis for each entity – Principle (ii) of TLAC Principles • Advocated direct supervisory discretion of host authority to set internal TLAC for material sub-group – Section 18 of TLAC Term Sheet	• Indirect supervisory discretion to set TLAC RWA buffer (because it depends on G-SIB surcharge, which is contingent on bucket allocation) – 12 CFR § 252.63	• Direct supervisory discretion to determine any additional requirement over a prescribed level of MREL – Art. 45d BRRD
Pillar 2 (stress testing)	• Advocated direct supervisory discretion in order to prevent capital from falling below prescribed threshold – Principle 4 of BCBS Pillar 2 Principles • Advocated direct supervisory discretion to increase prudential requirements due to risk profile and systemic importance – Principle No. 1 Basel Core Principles	• Indirect supervisory discretion in the form of drafting stress test scenarios – CCAR Instructions	• Direct supervisory discretion to shape the final score in all 4 areas of SREP • Indirect supervisory discretion regarding setting the P2R buffer and other SREP decision components (derived from discretion in 4 SREP areas) – SREP Methodology

* Direct supervisory discretion = when a supervisor can directly change a standard binding for G-SIBs.
** Indirect supervisory discretion = when a supervisor can influence the standard by means of making another decision that this standard is dependent on (i.e. allocation in given bucket on the G-SIB list → G-SIB buffer level).
*** Advocated supervisory discretion = international bodies such as FSB or BCBS enjoy real discretion only with regards to designation (and the aspects dependent on it, such as G-SIB surcharge and G-SIB leverage add-on). In other areas, such as general tailoring of prudential requirements or resolution planning, international bodies can only advocate given solutions, which should be implemented at the national/regional level to actually turn into operational supervisory discretion.

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4 G-SIBs and supervisory discretion

The currently binding G-SIB-oriented regulatory framework is a noticeable achievement, especially given the lack of such rules before the crisis.[1] However, as demonstrated in Chapter 3, G-SIB-specific provisions remain overly general. They do not take into account how different these entities are,[2] and the assessment of systemic importance is also flawed. Luckily, a solution to this generalization problem is already present in the G-SIB framework. Namely, in almost every regulatory area, supervisors were granted discretion that allows them to adjust G-SIB-oriented rules more individually.[3] The aim of this chapter is to take a closer look at the discretionary powers in general and this supervisory discretion awarded in the context of the G-SIB regulation and to show how it could transform from a forgotten regulatory tool into a practical solution to address the overgeneralized character of G-SIB-specific provisions.

The first part briefly describes general aspects of discretion – its two-sided nature, potential externalities, and behavioral disadvantage that it is put on. The second part contains an in-depth analysis of supervisory discretion in the G-SIB context. Analysis starts with potential improvements and benefits stemming from the exercising of these particular discretionary tools. The next section answers the question implicitly raised by Chapter 3. Namely, it offers an analysis on whether the discretionary tools are used by the supervisors. This assessment of both international and regional regulatory actions (or rather inactions) demonstrates a peculiar supervisory reluctance to adjust the general G-SIB-oriented rules. Even though regulators have these discretionary powers at their disposal, they do not use them, and the G-SIBs both in the USA and in the EU remain subject to provisions much too general for their diversity. Third, the barriers present in the current system of G-SIB-oriented regulation that seem to prevent supervisors from using supervisory discretion will be described. The last section of the G-SIB-oriented part of this chapter constitutes an attempt to formulate recommendations that would address these obstacles and allow regulators to exercise granted discretion.

1 See Chapter 2.
2 See Chapter 1.
3 See Table 3.6.

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4.1 General theory behind supervisory discretion

In all legal systems, we have been witnessing a constant war between proponents of principles- or goals-based regulation and the supporters of rules-based provisions. The former establishes some final outcomes, standards to be followed, or goals to be achieved, and it leaves plenty of leeway to regulatees, who are supposed to find a way to fulfil the prescribed aims.[4] Regulators in this environment are also usually left with broad discretion to tailor the rules accordingly. In contrast, the rules-based system relies on provisions that are highly detailed, precise, and prescriptive.[5] They define expected and prohibited actions and outline consequences, rarely allowing for exceptions. The role of discretion in this case is rather minimal.

Both of these approaches have flaws,[6] and most importantly they rarely function in their pure form.[7] Currently, most legislators opt for some balance between the two. As Braithwaite and Ayres write, regulation should be responsive and 'responsiveness is rather an attitude that enables the blossoming of a wide variety of regulatory approaches'.[8] Supervisory discretion present in the financial regulation and particularly in the regulation of G-SIBs constitutes a product of searching for such harmony between goals- and rules-based systems. It represents a hybrid approach, where precisely drafted rules are intertwined with supervisors' broad flexibility to adjust them. Such a mix seems necessary, given the dynamic character of financial law[9] and the potential of supervisory discretion to improve the framework binding G-SIBs.[10] However, discretion is a very complex tool, one that should be used with possible consequences in mind.

4.1.1 Discretion as a double-edged sword

Supervisory discretion can be used both for good and evil. The benefits are relatively clear and closely reflect those of principles-based regulation. Wisely utilized, discretion introduces flexibility and adjusts overly general rules to the operations or characteristics of certain entities. Hence, the positive potential of discretion is most accurately presented in the context of a particular set of provisions, because in each legal area discretionary tools bring different benefits.[11]

4 Christopher Decker, 'Goals-based and rules-based approaches to regulation', *BEIS Research Paper*, No. 2018/8, p. 5.
5 Ibid.
6 Ibid, p. 27.
7 For example Anita Anand stresses the presence of both principles and rules in most legal systems. See Anita Anand, 'Rules v. principles as approaches to financial market regulation', *Harvard ILJ Online*, vol. 49, 7 April 2009, p. 112.
8 Ian Ayres, John Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate*, Oxford University Press 1992.
9 Decker, 'Goals-based', p. 6.
10 See Section 4.2.1.
11 Ibid.

However, the evil side of discretion is more universal – and it is usually closely intertwined with deregulation. Supervisory discretion creates room for maneuver on the part of supervisors. Such individual adjustments of rules introduced within granted discretion bear the potential for deregulation. This is especially visible in financial law, as these provisions seem to largely depend on the stage of economic cycle. Said phenomenon was even defined as a regulatory sine curve[12] – just after a bank-induced crisis, supervisors become diligent and respect public moods. As soon as the dust settles and the sins are forgotten, regulators become reluctant to further tighten the rules. On the contrary, they tend to loosen them in order to boost the ongoing economic upswing. This is not a new phenomenon – we have observed such tendencies for years now, from the relatively minor deregulatory moves before the Great Depression to the dismantling of strict laws before the Global Financial Crisis.[13] Obviously, the more power and discretion supervisors have to weaken individual rules, the bigger the potential threat of deregulation.

Deregulatory perspectives are closely linked to a further threat – intensified lobbying and exerting influence on supervisory agencies that could turn into regulatory capture.[14] While lobbying in itself does not constitute a problem, its common result, regulatory capture, does. It is a situation in which regulators let the interests of a given group prevail over public interest.[15] Regulatory capture is perceived to be most common in the regulation of utilities, where natural monopolists try to exert influence on regulators.[16] However, regulation and supervision in banking and finance are not immune to capture.[17] It is a very specific environment, where many entities have incentives to be regulated more leniently. Moreover, in some jurisdictions they have a direct impact on politicians – in the USA they contribute to political campaigns. It is very vividly visible in the actions of every newly elected administration – they start with dismantling what their predecessors did and their campaign contributors do not support.

12 John Armour et al., *The Principles of Financial Regulation*, Oxford University Press, 2016, p. 562, see also Lawrence Baxter, 'Understanding Regulatory Capture: An Academic Perspective from the United States', in Stefano Pagliari (ed.), *The Making of Good Financial Regulation. Towards a Policy Response to Regulatory Capture*, International Centre for Financial Regulation, 2012.

13 See for instance Andrew Baker, 'Restraining regulatory capture? Anglo-America, crisis politics and trajectories of change in global financial governance', *International Affairs*, 2010, 86/3.

14 Actually, it is even difficult to assess the causality here – the deregulation potential incentivizes industry to exert influence and leads to capture, often resulting in said deregulation.

15 Comprehensive analysis of the definition of regulatory capture and its complex nature is beyond the scope of this contribution. For more see the original work of George Stigler, 'The theory of economic regulation', *Bell Journal of Economics and Management Science*, 1971, 2/3. For an analysis of the complex and vague nature of capture, see Daniel Hardy, 'Regulatory Capture in Banking', *IMF Working Paper*, vol. 2006, issue 34; Lawrence Baxter, '"Capture" in financial regulation: Can we channel it toward the common good?', essay, *Cornell Journal of Law on Public Policy*, 2011, 21/175. In the context of the too simplistic dichotomy of regulatory capture v. regulatory repression in the EU, its unobvious nature is presented in Eric Monnet, Stefano Pagliari, and Shahin Vallée, 'Europe Between Financial Repression and Regulatory Capture', *Bruegel Working Paper*, 2014/08.

16 Stigler, 'The Theory'.

17 For more detail see Hardy, 'Regulatory', pp. 4–6.

4.1.2 Discretion as a way of revealing information

Governmental agencies are powerful creatures. Regardless of industry they have information at their disposal that they are not allowed to disclose. However, sometimes the use of their discretionary tools could constitute a way to reveal information to the public. This is very visible in the context of the pharmaceutical industry, where every decision or announcement regarding their products influences a given company's market standing. A similar tendency can be noticed in the case of Big Tech firms. For instance, the staggering $2 billion antitrust fine imposed on Google sent its stock down.[18]

In the world of finance, one could point to CRAs and external auditors as the most important information intermediaries.[19] We witnessed the power of CRAs' downgrades during the eurozone sovereign debt crisis[20] and complacency of auditors in the case of Wirecard.[21] However, supervisory discretionary decisions also have a strong bearing on the market situation of financial entities. One of the most prominent examples in this context was the US TARP.[22] The Treasury and the Fed forced all of the largest American banks to accept financial help, as they did not want to send the wrong signal about specific entities (mostly BoA and Citigroup). Therefore, banks that were in relatively good condition also had to accept it. Currently, supervisors avoid revealing information for instance in the context of US living wills, when feedback on them is not disclosed.[23] Similarly in the EU, only final SREP results are published, in order to avoid detailed information hitting the market. [24]

4.1.3 Behavioral aspects of discretion

If possible, people choose a default option. This behavioral phenomenon has been empirically proven on many examples. Research regarding different aspects of life, from insurance and retirement policies to organ donation,[25] internet privacy

18 Seth Archer, 'Google's Record-Breaking Antitrust Fine Is Sending the Stock Slipping', *Markets Insider*, 27 June 2017, https://markets.businessinsider.com/news/stocks/google-stock-price-slipping-after-record-breaking-antitrust-fine-2017-6, accessed 20 December 2021.

19 Armour et al., *The Principles*, pp. 127–133.

20 Christopher Baum et al., 'Credit Rating Agency Downgrades and the Eurozone Sovereign Debt Crises', *National Bank of Poland Working Paper* No. 177, 15 May 2014.

21 Giorgio Barba Navaretti, Giacomo Calzolari, Alberto Franco Pozzolo, 'What are the wider supervisory implications of the Wirecard case?', Economic Governance Support Unit, European Parliament, October 2020.

22 For more information see Section 2.3.1.

23 See Federal Reserve and FDIC, 'Agency feedback letters and related information by year', www.federalreserve.gov/supervisionreg/agency-feedback-letters-index.htm, accessed 20 December 2021.

24 ECB, 'Pillar 2 Requirement 2020', 28 January 2021, www.bankingsupervision.europa.eu/banking/srep/html/p2r.en.html, accessed 13 December 2021.

25 Richard Thaler, Cass Sunstein, *The Nudge: Improving Decisions About Health, Wealth, and Happiness*, Penguin Books, 2009, pp. 185–187; Eric Johnson, Daniel Goldstein, 'Decisions by

and sex education,[26] has shown that we go for what is set as default. This tendency has its origins in a more general theory called a status quo bias – the willingness to stick to our current situation that we hope the default option will guarantee.[27] There are two main reasons why people decide to rely on default solutions. First, other choices usually require effort and we instinctively want to avoid that.[28] Second, default is often perceived as a recommendation or the most common choice.[29] Additionally, even when the default option is not chosen, then it influences the choice that has been made. Such a tendency to tailor a solution to make it as similar to the default as possible is called a default pull.[30]

In the case of supervisory discretion, the lack of action normally constitutes a default option – it relies on letting general provisions do their job. The choice to exercise discretion requires effort and is very often discouraged by indications that it should only be done in 'special cases'. Even when the discretion is exercised, default pull is visible, and discretionary actions rarely result in substantial changes in the situation of regulatees.[31]

4.2 Supervisory discretion to adjust regulation on G-SIBs

Supervisory discretion in the G-SIB context is especially crucial, as using it could address the issue of overly general G-SIB-oriented rules. But this is not the only benefit stemming from utilizing discretionary tools – further ones will be described below. Then the regulators' reluctance to use granted powers will be examined from several perspectives – data on their activity, potential obstacles, and finally solutions that could incentivize them to change their mode of operations.

4.2.1 Positive potential of supervisory discretion

The supervisory discretion included in the legal rules on G-SIBs equips regulators with tools to adjust these material provisions to their individual character and consequently, if need be, to address other potential flaws of the framework.[32] Therefore, this discretionary tool constitutes a unique universal solution to many G-SIB-related regulatory problems.

Default' in Eldar Shafir (ed.) *The Behavioral Foundations of Public Policy*, Princeton University Press, 2013, p. 417.

26 Johnson, Goldstein, 'Decisions', p. 419.

27 William Samuelson, Richard Zeckhauser, 'Status quo bias in decision making', *Journal of Risk and Uncertainty,* 1988, 1.

28 Johnson, Goldstein, 'Decisions', p. 420

29 Thaler, Sunstein, *The Nudge*, p. 93; Johnson, Goldstein, 'Decisions', p. 421.

30 Jason Dana, 'The default pull: An experimental demonstration of subtle default effects on preferences', *Judgment and Decision Making*, 2012, 7/1.

31 See Section 4.2.2. for examples.

32 The comprehensive assessment whether these proposals in themselves are correct or not is beyond the scope of this contribution. The analysis shall illustrate the universal character and positive potential of the supervisory discretion tool.

4.2.1.1 Adjusting overly general rules

Supervisory discretion can constitute a remedy especially regarding the issue broadly discussed in this contribution. Lessons from the crisis on overly general rules seem to be (at least partially) forgotten. Legal provisions currently binding both in the USA and in the EU certainly do not reflect the individualistic character of G-SIBs,[33] which is harmful to the whole framework.

Starting with a designation process that prevailingly relies on quantitative indicators,[34] moving to additional capital buffer and leverage ratio that arbitrarily rely on the mentioned procedure, ending with an identical level of large exposure limits for G-SIBs, none of these standards take into account the specific characteristics of each systemic entity. As a result of such rules, inherently different entities are expected to hold the same levels of additional systemic importance-related buffers and leverage. Wells Fargo is apparently as systemically risky as State Street and both are less threatening than BNY Mellon.[35] UniCredit is presumed to pose the same systemic threat as SocGen, Santander, and ING.[36] The more desirable individual approach is however a bit more visible in resolution frameworks, in institution-specific resolution, and in recovery plans and their assessment. Also Pillar 2 systems based on various forms of supervisory evaluation (including stress tests) are structured in a way that allows each entity to be considered in separation. However, these individual evaluations do not result in many individualized measures.

Even though the substantive rules are not sufficiently individually tailored and still show a tendency to treat all G-SIBs as a uniform group, legislators have introduced a tool that could remedy the lack of a higher degree of differentiation of material provisions and eradicate the generalization tendencies. The supervisory discretion described broadly in this contribution was included in almost all aspects of G-SIBs' regulation, both at the international and regional level.[37] First, supervisors enjoy direct discretion[38] in the area of designation. Amending G-SIB capital buffer internationally and within the EU is contingent on the designation process (specifically on bucket allocation). In the US such capital surcharge can be changed directly, without referring to the entire identification methodology. In turn, discretion in terms of leverage entirely depends on the bucket allocation. The large exposure framework is the only field where the only discretionary power is the US agencies' competence to exempt specific items from the limit.

The greatest discretion is granted in the areas of resolution planning, TLAC/MREL levels, and Pillar 2. As part of the assessment of resolvability, supervisors

33 See Chapter 1.

34 See Section 3.2.

35 See OFR, 'Bank Systemic Risk Monitor', US G-SIB Surcharges 2021.

36 See individual G-SII decisions 2020 (as the not all 2021 decisions were published as of 20 December 2021) at the ESRB, 'Systemically important institutions', www.esrb.europa.eu/national_policy/systemically/html/index.en.html, accessed 20 December 2021.

37 See Table 3.6.

38 Understood as ability to directly amend the level of a given buffer or result of assessment.

have a wide array of corrective tools at their disposal – from the strengthening of classical prudential requirements to interference with business model, structure, growth, and operations. They are also able to adjust minimum loss absorbency levels, either indirectly like in the USA or directly like in the EU, where MREL for G-SIBs can be increased above the preset minimum. In terms of Pillar 2, supervisors are responsible for drafting and conducting a comprehensive evaluation of each G-SIB's state, as a result of which an additional capital buffer is set for every assessed entity.

Consequently, supervisory discretion essentially provides competent authorities with the ability to individualize the legal framework for G-SIBs in all possible aspects (except for large exposure limits): G-SIB designation, G-SIB buffer, G-SIB leverage add-on, resolvability, TLAC, and Pillar 2 requirement.[39] Additionally, these discretionary powers constitute the only possible way to adjust overly general rules, as individual regulation cannot be adopted at the level of legislature.

4.2.1.2 Breaking up the big banks

Apart from the issue of more accurate individualization of G-SIB regulation, supervisory discretion could also serve as a means to address a long-discussed postulate of some scholarly and regulatory circles – namely it actually provides supervisors with the powers to break up the G-SIBs.

The concept of breaking up big banks has been present in public debate ever since G-SIBs emerged in the second half of the 20th century, but it gained momentum after the crisis, especially when scrapping the Glass–Steagall Act was seen as one of the factors that contributed to the downturn. Alan Greenspan, the controversial Chair of the Federal Reserve in the years running up to the crisis, put it bluntly, saying that if 'they [banks] are too big to fail, they are too big'.[40] He was joined by Mervyn King, ex-governor of the Bank of England,[41] but also by less predictable allies, such as the team that was fighting to save the American financial system (and rescued the banks) – Henry Paulson of the US Treasury, Ben Bernanke of the Fed, and Sheila Bair of the Federal Deposit Insurance Corporation (FDIC).[42] There was even support for that thought from the industry side. Former Citigroup chairman Sandy Weill surprised many when he joined the choir, especially as he could be seen as the man behind overturning the Glass–Steagall Act, the law separating investment and commercial banking activities.[43] Even years

39 See Table 3.6.

40 Alan Greenspan quoted in 'Greenspan Calls to Break Up Banks "Too Big to Fail"', *Dealbook by The New York Times*, 15 October 2009.

41 Video of Mervyn King, *BBC News*, 19 June 2013, www.bbc.com/news/av/business-22980749/sir-mervyn-king-too-big-to-fail-too-big-to-jail-or-simply-too-big, accessed 20 December 2021.

42 Johan Lybeck, *The Future of Financial Regulation. Who Should Pay for the Failure of American and European Banks?*, Cambridge University Press, 2016, pp. 362–363.

43 Sandy Weill was owner of Travelers Group before the merger with Citicorp, and he really wanted the merger to go through, even though at that point it was illegal to combine insurance and banking. For his statement on breaking up banks see Charles Riley, 'Sandy Weill: Break Up the Big Banks', *CNN Money*, 25 July 2012.

after the crisis, the proposals to break up big banks are still present in the public sphere, for instance in the plans and actions of the prominent Democratic senators Elizabeth Warren[44] and Bernie Sanders.[45]

Also in scholarly circles debate is heated and does not seem to fade with the years passing since the crisis. Wilmarth in his recent book *Taming the Mega Banks. Why We Need a New Glass-Steagall Act*[46] makes a strong case for a return of stricter structural provisions. Teachout is even broadening the scope of such analysis, calling for the breaking up of Big Tech and Big Ag along with the banks.[47] In all the scholarly works, old or new, two main strategies for breaking up G-SIBs prevail. The first advocates a radical path of setting a cap on size, for instance as a percentage of GDP.[48] However, such a blunt assumption that an increase in size of assets is always tantamount to an increase in systemic risk level is rather implausible.[49] The second strategy is milder and based on the solution that has been used before – namely a ban on combining proprietary trading and retail services under one roof. Different variants of such a structural measure have been implemented in the USA (Volcker Rule), in the UK (Vickers), and recommended in the EU Liikanen Report.[50] Some experts even advocate combining both approaches – size cap and activity separation.[51] However, many also perceive structural changes as more harmful than beneficial.[52] Ben Bernanke, Timothy Geithner, and Henry Paulson, former advocates of such solutions, recently admitted that they did not believe breaking up banks would work.[53]

44 Jonathon Trugman, 'Warren's Plans for Big Tech and Big Banks are Big Trouble', *New York Post*, 15 September 2019.

45 Erin Corbett, 'Bernie Sanders Wants to Break Up the Big Banks with a New Bill', *Fortune*, 3 October 2018.

46 Arthur Wilmarth, *Taming the Mega Banks. Why We Need a New Glass-Steagall Act*, Oxford University Press, 2020.

47 Big Ag stands for Big Agriculture. Zephyr Teachout, *Break 'Em Up. Recovering Our Freedom from Big Ag, Big Tech, and Big Money*, All Points Books, 2020.

48 See Simon Johnson, James Kwak, *13 Bankers: The Wall Street Takeover and the Next Financial Meltdown*, Pantheon Books, 2010; or a proposal by Bernie Sanders, see Too Big To Fail, Too Big To Exist Act, 3 October 2018, www.documentcloud.org/documents/4953767-TOO-BIG-to-FAIL-TOO-BIG-to-EXIST-ACT.html?embed=true&responsive=false&sidebar=false, accessed 20 December 2021.

49 See Section 2.2.1 and Nils Moch, 'Contribution of large banking institutions to systemic risk: What do we know? A literature review', *Review of Economics,* 2018, 69/3.

50 For more on comparison of these measures see Peter Mülbert, 'Managing Risk in the Financial System', in Niamh Moloney, Eilis Ferran, Jennifer Payne (eds), *The Oxford Handbook of Financial Regulation*, Oxford University Press, 2015.

51 Roberta Karmel, 'A law professor's perspective on "too big to fail"', *Journal of Banking Regulation*, 2014, 15, 3/4.

52 See Andreas Dombret, Patrick Kenadjian, *Too Big To Fail III: Structural Reform Proposals – Should We Break Up the Banks?*, De Gruyter, 2015; Edward Greene, Knox McIlwain, and Jennifer Scott, 'A closer look at "too big to fail": national and international approaches to addressing the risks of large, interconnected financial institutions', *Capital Markets Law Journal,* 2010, 5/2.

53 Ben Bernanke, Timothy Geithner, and Henry Paulson, *Firefighting: The Financial Crisis and Its Lessons,* Penguin Books, 2019, p. 115.

Regardless of the assessment of who is right and who is wrong in this debate, the tools to actually deliver even the most radical of the two strategies are at the supervisors' disposal. In the US, this power is vested in supervisors by means of two separate Dodd–Frank Act (DFA) provisions. Firstly, §121 of DFA allows the Federal Reserve Board to effectively size down a US G-SIB should it pose a 'grave threat' to the financial stability of the US.[54] In detail, the Fed (upon agreement of two thirds of the Financial Stability Oversight Council (FSOC) voting members) can limit a company's merger and acquisitions ability, restrict their ability to offer new products, require the company to terminate some ongoing operations, and finally, should these actions be inadequate, require the company to sell or transfer its assets. The second 'breaking up' provision is less macroprudentially oriented, but it can deliver essentially the same result. The DFA also introduced the option for the Fed and the FDIC to order divestiture as a final result of an unsuccessful living will resubmission process.[55] It is of course a measure of last resort, and before turning to it, the Fed and the FDIC can also require the G-SIB to increase capital and liquidity or restrict growth or operations. However, it is still a feasible option, and some argue it could have been implemented in the case of Wells Fargo.[56]

The 'break 'em up' measures are also present in the EU framework. Similarly to the US, supervisory discretion on that matter is granted within the resolution framework. According to BRRD, as a final stage of eliminating impediments to a given institution's resolvability, the resolution authority could also require the entity to divest specific assets.[57] Such competence essentially allows the resolution authority to size down an institution that seems unresolvable otherwise. Even though this power is also granted at the final stage of a lengthy process, it is not limited by further requirements and relies greatly on supervisory discretion.

4.2.1.3 Remedy for 'too low capital requirements, too low leverage ratio'

The second most common mantra after the post-crisis rules on G-SIBs had been adopted is the persistent criticism that the capital levels and leverage ratio are generally still too low. Also this potential flaw could be remedied by means of supervisory discretion broadly granted in the G-SIB-specific binding provisions.

Almost immediately after the core post-crisis reforms had been finalized, many voices were raised that the final levels of capital prescribed both by the international standards and by national implementations are simply too low. The most vocal and prominent example of this strain of thought was the work of Anat Admati and Martin Hellwig, *The Bankers' New Clothes: What's Wrong With*

54 12 US Code § 5331.

55 12 US Code §5365. See more on that in Section 3.6.2.1.

56 Lee Reiners, 'Using Living Wills to Break Up Big Banks', *The FinRegBlog Duke University School of Law*, 11 October 2016, https://sites.law.duke.edu/thefinregblog/2016/10/11/break-up-the-banks-but-how/, accessed 13 December 2021.

57 Art. 17 BRRD (Directive 2014/59/EU, OJ L 173, 12 June 2014).

Banking and What to Do About It,[58] in which decreasing leverage is praised as the best solution for problems with G-SIBs. Admati and Hellwig advocate a minimum leverage ratio of 20 to 30%, as they do not really support the risk-weighted assets-based framework. Even before publication of this book, Admati's views found the support of many scholars who signed an open letter to the *Financial Times* stressing the need to set the leverage ratio at the minimum of 15%.[59] Also some regulators argued that the capital levels should be raised. For instance, the Federal Reserve Bank of Minneapolis recommended as much as 38% of equity capital (of course raised gradually) for G-SIBs.[60] Others argue that the 'simple' capital requirements will never be enough and should be complemented by capital buffers encompassing contingent convertible debt instruments (CoCos) or by insurance for the case of sudden capital depletion.[61]

Of course, such recommendations and proposals triggered an immediate reaction. Banks openly claimed that the equity is too costly and higher capital requirements would prevent them from lending to the real economy.[62] Some scholars supported this view,[63] while others approached it more carefully. For instance, Dermine claims that there is no conclusive empirical proof for costly or costless equity and so excessive capital regulations should be avoided.[64] In turn, Stiglitz argues against the banks' view.[65]

Regardless of the final outcome of these discussions, or following King's approach that no one can know how much capital is really enough,[66] it is relevant for this contribution to stress that tools to implement the proposals to increase both RWA-based capital and leverage ratio for G-SIBs are actually at the supervisors' disposal.

58 Anat Admati, Martin Hellwig, *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It*, Princeton University Press, 2014.

59 Anat Admati et al., 'Healthy Banking System Is the Goal, not Profitable Banks', letter published by *Financial Times*, 9 November 2010.

60 For in-depth description of the so-called Minneapolis Plan see Ron Feldman, Paul Hiebert, 'Tackling Systemic Risks for Banks and Countries: Perspectives from the United States and Europe', in Douglas Arner, Emilios Avgouleas, Danny Busch, Steven Schwarcz (eds), *Systemic Risk in the Financial Sector. Ten Years after the Great Crash*, Centre for International Governance Innovation, 2019, p. 118.

61 T.T. Ram Mohan, *Towards a Safer World of Banking. Bank Regulation After the Subprime Crisis*, Business Expert Press, 2017, p. 105.

62 For instance *The Economist*, 'American Banks Think They Are Over-Regulated', 4 May 2017.

63 Glenn Hubbard, 'If "It" Happened Again. A Road Map for Regulatory Reform', in Sharyn O'Halloran, Thomas Groll (eds), *After the Crash: Financial Crises and Regulatory Responses*, Columbia University Press, 2019, p. 51.

64 Jean Dermine, 'Bank regulations after the Global Financial Crisis: Good intentions and unintended evil', *European Financial Management*, 2013, 19/4, p. 663.

65 Joseph Stiglitz, 'Reflections on The Global Financial Crisis Ten Years On', in Sharyn O'Halloran, Thomas Groll (eds), *After the Crash: Financial Crises and Regulatory Responses*, Columbia University Press, 2019.

66 Mervyn King, *The End of Alchemy: Money, Banking, and the Future of the Global Economy*, WW Norton, 2017, p. 257.

As for risk-dependent capital buffers binding G-SIBs, the supervisory discretion is visible in many instances. Basel III raised the minimum requirements and introduced several additional buffers that are often set by the authorities.[67] As for the G-SIB surcharge, a measure depending on an entity's systemic importance, US regulators are granted direct discretion to adjust the amount of this additional layer of capital.[68] In turn, in the EU the discretion is indirect, derived from supervisors' ability to move a G-SII to a different bucket. Once it is allocated in a different bucket, its G-SII buffer level changes too.[69] The minimum leverage ratio could be adjusted by the EU supervisors in the same way, as it has recently been made dependent on the bucket placement.[70] As for the leverage ratio in the US, for now G-SIBs have to comply with the enhanced supplementary requirement of 5%,[71] with no option to amend this level for individual G-SIBs. However, a relatively recent proposal can change that by adding an element of supervisory discretion.[72] Consequently, putting aside the desired tailoring of the buffers to G-SIBs' individual features, a general increase is also in supervisors' hands.

4.2.1.4 Real flexibility for real economy

The argument that is often heard from the side of the industry is that all strict prudential rules prevent banks from aiding the real economy, both in normal times and especially in the face of a downturn.[73] Supervisory discretion in the context of G-SIB regulation is also helpful in that regard and grants supervisors the opportunity to dynamically adjust the rules in order to aid the real economy in crisis.

Despite the weak merit of banks' arguments regarding their constrained ability to lend out,[74] their impact on the broader economy is undeniable. Historically, banks facilitate 'the allocation and deployment of economic resources over time and place to socially useful purposes'.[75] Even after the GFC, Stiglitz stressed the simple truth that 'banks should be prevented from doing bad things, but they also need to be encouraged to do things that are beneficial to our society and our economy.'[76] They channel funds to the real economy and thus this intermediary function has a vast impact on its condition.[77] Naturally, G-SIBs' influence

67 For instance countercyclical buffer.
68 12 CFR § 217.400 (c)(2).
69 Art. 131 (10) CRD.
70 Ibid and Art. 1(46) Regulation 2019/876. The additional G-SII leverage add-on will come into force in 2023.
71 See more in Section 3.4.2.1.
72 Federal Register. Volume 83, Issue 76, 19 April 2018 (83 FR 17317).
73 For instance see Richard Bove, 'A Capital Mistake', *The New York Times*, 11 September 2010.
74 Saule Omarova, 'The too big to fail problem', *Cornell Law School Legal Studies Research Paper Series,* 2019, 19/06, p. 2525.
75 Philip Arestis, Elias Karakitsos, *Financial Stability in the Aftermath of the Great Recession*, Palgrave Macmillan, 2013, p. 193.
76 Stiglitz, 'Reflections', pp. 180–181.
77 See Nicola Cetorelli, Michael Blank, 'Banking and Real Economic Activity: Foregone Conclusions and Open Challenges', in Allen N. Berger, Philip Molyneux and John O. S. Wilson (eds), *The Oxford Handbook of Banking*, Oxford University Press, 2019.

is proportional to their magnitude, so the role they play is much more relevant than that of smaller and less complex entities. The impact on output and other macroeconomic aspects also stems from the fact that via their intermediary function, G-SIBs act as transmitters of macroeconomic policy. Their reactions to interest rate movements translate into cheaper/more expensive credit and hence into swings in consumption and investment.[78]

The importance of G-SIBs' operations in the context of the real economy is particularly visible in the context of a global pandemic and the economic crisis induced by it. In contrast to the GFC, this crisis originated in the real economy, when lockdowns prevented people from doing their jobs. Regulators reacted swiftly, aware of the fact that without G-SIBs as allies, they will not win the fight to mitigate the downturn and start recovery. Apart from monetary and legislative actions, they relied greatly on discretion and their ad-hoc powers. In the US, they temporarily amended leverage provisions by means of exempting treasuries and reserves from the sum of assets used to calculate the leverage ratio.[79] Also TLAC requirements were eased[80] and the Federal Reserve announced a 'reduction of examination activities'.[81] It also added sensitivity analysis to its stress-testing exercise, individual results of which remained undisclosed. As for interference in capital levels, G-SIBs were required to suspend share buybacks and cap (but not withhold) dividend payouts.[82]

Similarly in the EU, regulators focused on boosting banks' resilience in the light of upcoming loan losses and on allowing G-SIBs to aid the real economy in crisis. The European Banking Authority (EBA) postponed its EU-wide stress-testing exercise to 2021,[83] provided a framework of guidelines how the Supervisory Review and Evaluation Process (SREP) should be adjusted to mirror the circumstances of the COVID-19 pandemic,[84] and urged resolution authorities to also take

78 For more on this transmission function see Joe Peek, Eric S. Rosengren, 'The Role of Banks in the Transmission of Monetary Policy' in Allen N. Berger, Philip Molyneux, and John O. S. Wilson (eds), *The Oxford Handbook of Banking*, Oxford University Press, 2015.

79 Jesse Hamilton, 'Big Banks Get Fed Blessing to Extend Leverage', *Bloomberg*, 1 April 2020.

80 Federal Reserve, 'Federal Reserve Board announces technical change to support the U.S. economy and allow banks to continue lending to creditworthy households and businesses', Press Release, 23 March 2020, www.federalreserve.gov/newsevents/pressreleases/bcreg20200323a.htm, accessed 20 December 2021.

81 Federal Reserve, 'Federal Reserve provides additional information to financial institutions on how its supervisory approach is adjusting in light of the coronavirus', Press Release, 24 March 2020, www.federalreserve.gov/newsevents/pressreleases/bcreg20200324a.htm, accessed 20 December 2021.

82 Federal Reserve, 'Federal Reserve Board releases results of stress tests for 2020 and additional sensitivity analyses conducted in light of the coronavirus event', Press Release, 25 June 2020, www.federalreserve.gov/newsevents/pressreleases/bcreg20200625c.htm, accessed 20 December 2021.

83 EBA, 'EBA statement on actions to mitigate the impact of COVID-19 on the EU banking sector', Press Release, 12 March 2020, https://eba.europa.eu/eba-statement-actions-mitigate-impact-covid-19-eu-banking-sector, accessed 20 December 2021.

84 EBA, 'EBA provides further guidance on the use of flexibility in relation to COVID-19 and calls for heightened attention to risks', Press Release, 22 April 2020, https://eba.europa.eu/eba-provides

that into account in their assessments of resolvability and recovery plans.[85] The ECB's measures were even more substantial. It lowered capital requirements for market risk[86] and allowed banks to use their capital and liquidity buffers.[87] It also changed the composition of the Pillar 2 Requirement (P2R) – now also AT1 and AT2 capital can qualify as P2R, not only CET1.[88] In contrast to the Fed, the ECB officially asked the banks not only to stop share buybacks but to refrain from paying dividends until 1 October 2020.[89]

The measures undertaken by supervisors in the context of G-SIBs in the face of the ongoing pandemic were criticized. Former Chair of the FDIC Sheila Bair, along with former Vice-Chair Thomas Hoenig, wrote a letter to the US Senate Committee to express their concern regarding the dismantling of the capital framework.[90] They made a strong case that the leverage calculation exemptions will not incentivize banks to lend out more, because instead of granting more loans they will take on more of the exempted instruments. Also, they criticized this loosening of capital requirements in the face of no ban on dividend payouts. One could also be skeptical about the undisclosed results of a sensitivity analysis by the Fed. It was the transparency and disclosure of stress test results followed by requirements to raise capital that helped a lot during the GFC.[91] Other scholars demonstrate that G-SIBs (at least the EU ones) are vastly undercapitalized and advocate for centralized recapitalization.[92] Finally, Kleinnijenhuis, Kodres, and

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-further-guidance-use-flexibility-relation-covid-19-and-calls-heightened-attention-risks, accessed 20 December 2021.

85 EBA, 'EBA calls on resolution authorities to consider the impact of COVID-19 on resolution strategies and resolvability assessments', Press Release, 9 July 2020, https://eba.europa.eu/eba-calls-resolution-authorities-consider-impact-covid-19-resolution-strategies-and-resolvability, accessed 20 December 2021.

86 ECB, 'ECB Banking Supervision provides temporary relief for capital requirements for market risk', Press Release, 16 April 2020, www.bankingsupervision.europa.eu/press/pr/date/2020/html/ssm.pr200416~ecf270bca8.en.html, accessed 20 December 2021.

87 ECB, 'ECB Banking Supervision provides temporary capital and operational relief in reaction to coronavirus', Press Release, 12 March 2020, www.bankingsupervision.europa.eu/press/pr/date/2020/html/ssm.pr200312~43351ac3ac.en.html, accessed 20 December 2021.

88 ECB, 'ECB Banking Supervision provides temporary capital'.

89 ECB, 'ECB asks banks not to pay dividends until at least October 2020', Press Release, 27 March 2020, www.bankingsupervision.europa.eu/press/pr/date/2020/html/ssm.pr200327~d4d8f81a53.en.html, accessed 20 December 2021.

90 Sheila Bair, Thomas Hoenig, 'Letter to Mike Crapo, Chairman of U.S. Senate Committee on Banking, Housing, and Urban Affairs', 4 August 2020. Letter has been distributed by a mailing list to professors and experts on US financial regulation, file with the author. See also Better Markets, 'Wall Street Again Shamelessly Using Pandemic as a Pretext to Get More Deregulation: Lowering Capital Leverage Ratio Endangers Banking System, Makes Bailouts Likely', 29 July 2020, https://bettermarkets.com/newsroom/wall-street-again-shamelessly-using-pandemic-pretext-get-more-deregulation-lowering-capital, accessed 20 December 2021.

91 See analysis of SCAP success in Section 2.3.1.

92 Moritz Schularick, Sascha Steffen, and Tobias H. Tröger, 'Bank capital and the European recovery from the COVID-19 crisis', *SAFE White Paper,* June 2020, 69.

Wetzer point out that even with all the 'freed' capital, it is not really 'usable'.[93] They advocate for more discretion in releasing the buffers and redefining the usable capital to be built up in non-crisis times.

All of this criticism is justified and reveals a common flaw of these regulatory discretionary actions. Even though the coronavirus crisis has shown that supervisory discretion is essential to aid the troubled real economy, it was used very chaotically and arbitrarily, introducing changes that rarely apply to individual institutions but are binding for the whole banking system.[94] The measures that could be seen as somewhat individual and taking into account the character of a given entity are the sensitivity analysis in the USA (but individual results are undisclosed and no G-SIBs are required to raise capital) and the SREP adjustment recommendations of the EBA. The only example of truly individual action aimed at boosting lending was the Fed's lifting of the asset cap imposed on Wells Fargo after its fake account scandal.[95] In the EU, G-SII buffers set according to systemic importance remained in place, even though adjusting them individually could have given incentives for some banks to lend and for others (for instance less retail-oriented, or more troubled) to remain resilient. This could be crucial, as G-SIBs are differently equipped to aid the real economy in crisis, due to their specific characteristics.[96]

4.2.1.5 Greener path

G-SIB-related discretion could also turn out to be vital in an ongoing global crisis that we have been facing for years – namely in the fight to tackle climate change. Regulators on both sides of the Atlantic Ocean are working intensively on including sustainability factors in financial regulation. At the end of October 2021, the EC adopted its next comprehensive Banking Package encompassing climate-related aspects.[97] Around the same time the FSOC published the lengthy *Report on Climate-Related Financial Risk 2021*,[98] including an array of recommendations that should allow various US financial regulatory agencies to better evaluate and address climate risks. One trend is visible – climate change should be taken into account when regulating financial institutions, as it is becoming a more and more viable threat to their stable functioning.

93 Alissa Kleinnijenhuis, Laura Kodres, and Thom Wetzer, 'Usable Bank Capital', *VoxEU*, 30 June 2020.

94 Or a group of banks as in the case of US leverage ratio amendments.

95 Laura Noonan, 'Federal Reserve Lifts Wells Fargo's Asset Cap', *Financial Times*, 8 April 2020.

96 See Chapter 1.

97 For instance definitions of environmental, social and governance (ESG) risks, requirements to report exposures to supervisors up to targeted risk weight adjustments. See EC, 'Banking Package 2021: new EU rules to strengthen banks' resilience and better prepare for the future', Press Release, 27 October 2021 https://ec.europa.eu/commission/presscorner/detail/en/IP_21_5401, accessed 20 December 2021.

98 FSOC, 'Report on climate-related financial risk', 21 October 2021.

In the context of G-SIBs, discretion could constitute a useful tool in the process of addressing climate issues. First, sustainability could be taken into account by supervisors adjusting the designation results. Climate risk undoubtedly contributes to the systemic risk that a given entity poses and could undermine financial stability.[99] As mentioned above,[100] three types of climate-related risk can be distinguished: physical (to the value of assets/liabilities), transition (caused by the adjustments), and liability (losses caused by environmental damage).[101] Many G-SIBs are on the line in all three of these areas, given the scale of their operations and vast engagement in financing fossil fuels.[102] Therefore, such banks with severe climate-related deficiencies should be considered more systemically risky than ones approaching this topic properly. In the BCBS methodology,[103] sustainability could be included as an ancillary indicator to be looked into while adjusting the quantitative score.[104] Supervisory judgment regarding EU designation also depends on ancillary indicators,[105] and so climate protection could be seen as one in this case, too. In the US, the Federal Reserve Board can apply G-SIB-oriented rules to any Fed-regulated entity on the basis of several features – for instance capital structure, size, or risk profile.[106] Climate risk could be considered as part of an institution's risk profile.

The same goes not only for the application of G-SIB-specific provisions but also for the adjusting of the G-SIB buffer. The Fed can adjust it in the light of several criteria, including risk profile, which again allows for the introduction of climate risk.[107] In the EU, the G-SII buffer depends on the outcome of the designation and bucket placement, so the above-mentioned ancillary indicators would matter.[108]

Apart from discretionary influence on the designation of G-SIBs and the setting of additional buffers, climate change could also be taken into account in other areas of G-SIB-oriented regulation. Sustainability should not be omitted in the process of drafting and assessment of living wills (or recovery and resolution plans in the EU). The requirement to evaluate and provide feedback on these documents by the supervisors opens a door for discretionary actions. A step in this direction has already been taken in the area of EU Pillar 2 assessment and stress

99 See Veena Ramani, 'Climate change is a systemic financial risk', *The Regulatory Review*, 4 November 2020; Pedro Nicolaci da Costa, 'Climate Change Poses a Clear and Present "Systemic Risk" to the Economy', *Forbes*, 20 December 2020.

100 See Section 1.4.2.

101 FSB, 'The implications of climate change for financial stability', 23 November 2020.

102 See Section 1.4.2.

103 BCBS, 'Global systemically important banks: revised assessment methodology and the higher loss absorbency requirement', 5 July 2018.

104 BCBS, 'Instructions for the end-2020 G-SIB assessment exercise', January 2021, p. 22.

105 EBA, 'Revised Guidelines on the specification and disclosure of systemic importance indicators', 4 November 2020, p. 17.

106 12 CFR § 217.404.

107 12 CFR § 217.400 (c)(2).

108 Art. 131(4) and (9) CRD.

testing. Namely, in 2022 the ECB is to conduct the first fully fledged climate risk stress test and include its results in the final SREP outcome.[109] Moreover, the ECB will not only look into the loan book to assess climate impact. The trading books of the EU G-SIBs will also be scrutinized.[110] The USA is moving more slowly towards testing banks for climate-related risks. The Federal Reserve Bank of New York published a research paper presenting a model of a stress test aimed at G-SIBs, assessing their situation in climate-stress scenarios.[111] However, in both jurisdictions climate-related issues will sooner or later be considered when assessing the resilience of a given G-SIB. Discretionary tools already at hand can facilitate this process.

4.2.2 Supervisory discretion, unused

Even though the supervisory discretion is present in almost all regulatory areas concerning G-SIBs and this tool exhibits great potential to improve G-SIB-specific regulation, some odd aversion[112] to adjust the G-SIB-oriented rules to their individual features could be noticed in the behavior of supervisors since the adoption of the G-SIB-related legal provisions that introduced these discretionary powers after the GFC. It is present at the international level and regionally – both in the USA and in the EU.

4.2.2.1 International level

In the case of the international bodies engaged in drafting G-SIB regulation, Financial Stability Board (FSB) and Basel Committee on Banking Supervision (BCBS), supervisors' unwillingness to tailor the rules can be spotted in the context of designation/bucket allocation and automatically regarding features dependent on such placement. The analysis shall start with the year 2014, when the use of supervisory judgment was for the first time mentioned in the commentary to the FSB's G-SIB list.[113] The number of instances when supervisory judgment was

109 Letter by ECB staff to significant institutions, 'Information on participation in the 2022 ECB Climate Risk Stress Test', 18 October 2021, www.bankingsupervision.europa.eu/press/letter-stobanks/shared/pdf/2021/ssm.2021_letter_on_participation_in_the_2022_ECB_climate_risk_stress_test~48b409406e.en.pdf, accessed 20 December 2021.

110 Nicholas Comfort, 'ECB to Scrutinize Banks' Trading Books to Expose Climate Risk', *Bloomberg*, 16 September 2021.

111 Hyeyoon Jung, Robert Engle, and Richard Berner, 'Climate stress testing', *NY Fed Staff Report* No. 977, September 2021; Christopher Condon, 'Fed Climate Stress Test Model for Banks Seen in Research Paper', *Bloomberg*, 27 September 2021.

112 It is important to stress that the supervisory reluctance/aversion/inaction described here should be distinguished from the term of regulatory forbearance encompassing mainly reactive inaction (lack of enforcement actions, etc.), not the refusal to shape rules more individually. For more on regulatory forbearance see Armour et al., *The Principles*, p. 563.

113 FSB, '2014 update of list of global systemically important banks (G-SIBs)', 6 November 2014, point 5.

Table 4.1 Supervisory judgment in the FSB/BCBS G-SIB designation process

Year of publication	*Allocations/designations based on supervisory judgment*	*Overall allocations/designations*
2014	2	30
2015	1	30
2016	3	30
2017	2	30
2018	0	29
2019	1	30
2020	1	30
2021	1	30
Total	11	239

exercised in the context of the FSB's G-SIB designation and the number of all allocations/designations in a given year are presented in Table 4.1.[114]

Only around 4.6%[115] of all designation decisions are not solely based on the indicator calculation but also on supervisory judgment (and so on ancillary indicators discussed and praised in Chapter 3). One could argue that 4.6% is not that low of a ratio, but a closer look at the context of these discretionary decisions proves the opposite. All 11 of them actually serve the purpose of keeping the list as it is – they do not force G-SIBs to adjust their operations due to changes in their business models, or specific risks they create. In 2014, two instances of supervisory judgment referred to keeping Nordea and BBVA on the G-SIB list as they did not reach the cut-off score. Both entities were 'regulars' – designated before both in 2012 and 2013. Actually, Nordea is a supervisory judgment champion, because for four years in a row it has been kept on the list without reaching the cut-off score. One has to mention that its scores were always very close, with an average of 122 (the cut-off is 130). The only example of supervisory judgment exercised 'in the middle of the list', i.e. not regarding being kept on it, was BNP Paribas in 2016. It was one point short of the bucket 3 threshold, which it had occupied since the introduction of the bucketing approach. Again, it was decided it should stay in the higher bucket. Looking at these discretionary decisions, one can be certain that they were not exercised to take into account individual aspects of G-SIBs that indicator-based calculations omitted – they were aimed at maintaining the status quo. The actual changes in bucket allocation were always based solely on the indicator-based calculation result. In most cases of changing to a lower bucket, the score was also significant enough that supervisors did not have the numerical

114 See final scores published by OFR, 'Bank Systemic Risk Monitor', Basel Scores 2021, and on a comparison whether the bucket placement reflects the score range for a given bucket prescribed in the BCBS G-SIB Methodology 2018 (BCBS, 'Global systemically important banks: revised assessment methodology and the higher loss absorbency requirement', 5 July 2018).

115 11/239 = 0.0460251

argument to maintain the previous state. For instance, Deutsche Bank, which in 2019 landed in bucket 2, not in its regular bucket 3, achieved it with a drop by as many as 68 points.

Consequently, as supervisory discretion is not utilized to introduce a more individualized approach in the G-SIB designation framework, also the G-SIB surcharges and the leverage ratio add-on do not mirror the specific character of each G-SIB. Inaction of the FSB and BCBS, along with that of national authorities engaged in this supervisory judgment-based process, preserves the seemingly institution-tailored approach of designation and bucketing that is actually still too general for entities so inherently different.

4.2.2.2 Regional level

A similarly passive attitude but in an even wider range of regulatory aspects is visible at the regional level in the USA and in the EU.

4.2.2.2.1 USA

Supervisory reluctance characterizes several areas of US G-SIB regulation, whether designation, G-SIB surcharge and resolution aspects, or stress testing. Firstly, the Federal Reserve Board never used the discretion[116] to apply G-SIB-related provisions to a non-G-SIB entity. This could be understandable, as US G-SIB designations reflect decisions of the FSB, and it seems like all the entities posing a systemic threat are already encompassed by the framework. The inaction is more harmful in the context of the G-SIB surcharge. Even though broad competences to 'adjust' the surcharge are placed in the hands of the Fed, US G-SIBs always[117] end up bound by the surcharge based on one of the indicator-based methods. Looking at the 2021 surcharges, one could argue that maybe adjustment was not necessary – G-SIB buffers seem differentiated. JP Morgan Chase, Citigroup, BNY Mellon, and Bank of America all have distinct requirements, Goldman and Morgan Stanley 'share' the 3% buffer, while Wells Fargo and State Street both have to hold 1.5%.[118] These levels may seem individualized, but they are not, as they do not mirror the specific character of each G-SIB's business and are based on a flawed methodology.[119] The OFR compiling the data for the FSOC created an index additionally stressing this defect. The G-SIB surcharge is supposed to be proportional to systemic importance, however the OFR's Contagion Index, based on connectivity, net worth, and outside leverage,[120] shows that it

116 12 CFR § 217.400 (c)(1).

117 I compared the score ranges determining the bucket allocation/level of the G-SIB surcharge (see Section 3.3.2.1), scores of given G-SIBs throughout the years (OFR) and the final G-SIB surcharges they were supposed to hold (OFR) in the years from 2017 to 2021. Final surcharge always reflected the level defined by the score, so discretion was never exercised.

118 OFR, 'Bank Systemic Risk Monitor', US G-SIB Surcharges 2021.

119 See Section 3.2.

120 For methodology see OFR, 'Bank Systemic Risk Monitor', Contagion Index 2021 Q3.

most likely is not. According to the index, BNY Mellon and State Street are the third and fourth (after JP and Citi) most contagious G-SIBs. In turn, they hold the lowest levels of G-SIB buffer. Also Wells Fargo seems to be far more contagious than Morgan Stanley or Goldman Sachs, both of which are required to comply with higher G-SIB surcharges. The Federal Reserve could rectify this by using its discretion and adjusting the buffers according to these institutions' specific characteristics, but it does not do so.

As for resolution planning, supervisory reluctance to interfere is equally noticeable. Since the resolution framework was finally adopted and all the guidance was issued in 2014, the Fed and the FDIC have noticed deficiencies[121] in resolution plans only in two assessment rounds, in 2015 and 2016.[122] These years could be seen as a 'warm-up round' also for the supervisory agencies, given the novel enormous task that assessing resolution plans turned out to be. Also in 2016, the only instance of a rejection of a resubmitted plan was noted. It referred to Wells Fargo, which was already in deep trouble due to the fake accounts scandal that broke earlier that year. However, no resolution-related measure was imposed on this institution as a result of these assessments.[123] After 2016, no deficiency was ever spotted again in any of the living wills submitted by the eight US G-SIBs. One could argue that G-SIBs simply changed considerably and became perfectly resolvable. At least this is the conclusion to be derived from the lack of deficiencies in the living wills. However, many studies prove quite the opposite. Namely, G-SIBs still enjoy a funding advantage over non-G-SIB financial entities, and that is a sign that the market does not believe in their orderly resolvability, should worse come to worst.[124] Of course, the difference in funding costs has declined, thanks to the comprehensive resolution-related reforms and bail-out prevention measures.[125] Nevertheless, it is still expected that if a G-SIB was to fail, it would be bailed out by the government. This means that the Fed and the FDIC should

121 See Section 3.6.2.1. In contrast to deficiencies, the Fed and the FDIC sometimes identify 'shortcomings' which have to be taken into account and rectified when a G-SIB submits its resolution plan for the following year.

122 The data stems from Feedback Letters by the Fed and the FDIC. See Federal Reserve and FDIC, 'Agency Feedback'.

123 The restrictions on growth imposed on Wells Fargo were not directly related with the living will assessment. The asset cap and cease and desist order issued therewith were based on provisions on corporate practices (for instance 12 CFR § 225.4). Federal Reserve, 'Responding to widespread consumer abuses and compliance breakdowns by Wells Fargo, Federal Reserve restricts Wells' growth until firm improves governance and controls. Concurrent with Fed action, Wells to replace three directors by April, one by year end', Press Release, 2 February 2018, www.federalreserve.gov/newsevents/pressreleases/enforcement20180202a.htm, accessed 20 December 2021.

124 Government Accountability Office, 'Large bank holding companies. Expectations of government support', July 2014. However, also later reports confirm these statements, see FSB, 'Evaluation of the effects of too-big-to-fail reforms. Final Report', 31 March 2021 (further as FSB TBTF Report 2021), p. 35.

125 Ibid.

Table 4.2 Results of the CCAR exercise

Year	*Objections*				*Number of all firms undergoing CCAR*
	Quantitative	*Qualitative*	*Regarding US G-SIBs*	*Regarding US firms of EU G-SIBs*	
2013	1	2	0	0	18
2014	1	4	1	3	30
2015	0	2	0	2	31
2016	0	2	0	2	33
2017	0	0	0	0	34
2018	0	1	0	1	35
2019	0	0	0	0	18
Total	2	11	1	8	199

and could do more to adjust G-SIBs' individual operations and preparedness for the event of resolution.

Someone could contest that US regulators maybe neglect their tools in the aspects of designation, additional buffers, and resolution, but they make up for it with a high level of involvement in stress testing. However, supervisors also do not act regarding this prominent example of discretion, the one that most profoundly takes into account the individual features of G-SIBs. Table 4.2 presents the number of objections resulting from CCAR exercises and the number of firms encompassed by this process in the last several years.[126]

Two main conclusions can be derived from Table 4.2. First, with time, supervisors have become more and more reluctant to interfere in banks' capital levels, and they objected much less to their capital planning, even though the number of assessed firms was rising. One could argue that maybe banks just gradually enhanced their resilience, but the analysis conducted by Bloomberg proves otherwise.[127] It shows that tests are becoming easier each year, and that could be the reason for a decreasing number of objections. The second conclusion from Table 4.2 is that US G-SIBs are especially 'protected' in this framework. In seven years, only one time did a US G-SIB have its capital plan objected to.[128] In turn,

126 Not only G-SIBs undergo stress tests, as described in Chapter 3 – that is why the sum of quantitative and qualitative objections does not have to be equal to the sum of objections regarding US G-SIBs and US firms of EU G-SIBs. 2013 was the first year when CCAR was fully functional. In turn, from 2020 stress tests do not include an objection procedure for US G-SIBs – results of this exercise are incorporated into the level of stress capital buffer. That is why the Fed does not report on those in the same way, and they are not included in the comparison. All the data stems from CCAR Reviews and Result Reports published on the Federal Reserve Board's website. See Federal Reserve, 'CCAR by Year', www.federalreserve.gov/supervisionreg/ccar-by-year.htm, accessed 20 December 2021.

127 Mark Whitehouse, 'The Problem with Stress Tests', *Bloomberg*, 18 June 2019.

128 It was Citigroup in 2014.

no less than eight out of the total of 13 objections were directed towards US-based firms of EU G-SIBs, especially Deutsche Bank and Santander. Subsidiaries of these firms experienced three objections each. It could be perceived as bias of US supervisors, especially given the fact that the publicly available objections have a clear impact on the market position of a given entity.

Apart from this display of supervisory reluctance to adjust G-SIB-specific rules individually, US regulators also have introduced many amendments to this stress-testing system, essentially slowly dismantling its main advantages, such as individual focus and the element of surprise regarding stress scenarios. Whether abandoning qualitative assessment, much broader pre-test disclosures of models for the exercise, or giving up on the objection procedure altogether and replacing it with the stress capital buffer (SCB), these steps show in which direction the Fed is headed.[129] Even the SCB, seemingly an individually tailored measure, is shaped according to numerical losses, without much discretion left to the supervisors. The results of the recent exercise including the SCB instead of the objection procedure clearly show the generalizing approach.[130] The majority of US G-SIBs have to hold around 3% as their SCB, Goldman Sachs and Morgan Stanley being the only exceptions, which confirms that the individualization potential of stress testing is largely wasted.

4.2.2.2.2 EU

In the EU the inaction of supervisors is equally visible as in the US. The EU G-SIBs are designated separately for two purposes – within the EU-wide framework for the sake of setting specific prudential standards (such as G-SII buffer, G-SII leverage, large exposure limits, and MREL) and within the SSM system for the purposes of centralized supervision by the ECB. G-SII designations are conducted by national authorities and notified to EU bodies. Table 4.3[131] shows how many decisions in this regard were actually made using the supervisory judgment flexibility granted by material provisions.[132]

It is noticeable that not many decisions are based on supervisory discretion, so the majority of them rely on the arbitrary methodological calculations. One could point out that 8.5% of all designations is a bigger proportion than the one presented by the FSB (4.5%). However, in-depth analysis of the circumstances of these decisions shows that they clearly did not stem from a will to adjust the designation result to the individual features of G-SIBs. Rather, EU supervisory authorities carefully followed designations by the FSB. For instance, in 2016 both cases of discretion referred to French G-SIBs that did not make the cut-off score.

129 More details on these steps in Section 3.7.2.1.

130 Federal Reserve, 'Large bank capital requirements', August 2021.

131 Data in the table was gathered from notifications on G-SII designation published on ESRB's website. Notifications based on 2020 end-year data have not yet been published as of 20 December 2021. See ESRB, 'Systemically important'.

132 See Table 3.6.

Table 4.3 Supervisory judgment exercised in the aspect of G-SII designation

Year of decision	*Supervisory judgment- based G-SII designations*	*All G-SII designations*
2014	0	12
2015	1	14
2016	2	11
2017	2	12
2018	(1)*	11
2019	1	11
2020	1	11
Total	7	82

* Supervisory discretion-based decision designating Nordea as a G-SII despite not reaching the cut-off score was reversed after the FSB published its G-SIB list without Nordea included.

BPCE did not reach the minimum G-SII threshold of 130 and BNP Paribas was just below the level to be placed in bucket 3. However, in both cases the French authority exercised supervisory discretion and 'lifted' these entities to the buckets that they so closely missed. The decision was made on the same day that the FSB published its 2016 G-SIB list, placing these banks in those exact buckets also by means of supervisory discretion. A similar pattern was followed in the case of RBS and Nordea in 2017.

It is true that EU authorities also take part in the FSB's supervisory judgment process. However, the conditions for discretion-based designation are different in the BCBS methodology and in the CRD.[133] Also, national authorities sometimes make decisions clearly contradictory to the ones later taken by the FSB. The most striking example of such a situation is the overturning of the Nordea decision in 2018.[134] In this case the Finnish supervisory authority first designated Nordea as a G-SII and then quickly overturned its designation after the FSB did not put Nordea on the G-SIB list. Did Nordea really stop being systemically important?

As a result of this inaction in the field of G-SII designation, G-SII buffer tailoring, leverage ratio, and other aspects depending on such identification also remain neglected and harmfully general. It could be argued that the G-SII buffer constitutes one of two alternatives (alongside the other systemically important institutions (O-SII) buffer),[135] and the highest is eventually applicable, so maybe the O-SII buffer will be more individually tailored. However, such a claim would

133 Directive 2013/36/EU, OJ L 176, 27 June 2013. See also the latest amendment Directive (EU) 2019/878, OJ L 150, 7 June 2019. See Section 3.2.

134 FIN-FSA Board, 'Decision on Nordea's identification as a G-SII', Press Release, 20 December 2018, www.finanssivalvonta.fi/globalassets/en/publications/press-releases/2018/mv_gsii_201218/macroprudential_decision_gsii.pdf, accessed 10 December 2021. For more details see Section 3.2.2.

135 See Section 3.3.2.2.

be misleading. The O-SII buffer is very rarely higher than the G-SII one. In general, levels of all O-SII buffers in a given country rarely exceed that of a G-SII surcharge. Again, now only the Netherlands and Germany prescribe it at a higher level.[136]

With regards to SI designation for purposes of centralized ECB-led supervision, all the EU G-SIBs were placed under the ECB's power on the grounds of a prescribed material requirement, namely size of assets. Therefore, in the context of EU G-SIBs, the ECB did not really have to use its discretion granted by Art. 6 of the SSM Regulation. Nevertheless, it recently used its judgment only in four cases out of 113 supervised entities.[137] Two of those referred to EU-based companies owned by US G-SIBs. This could be seen as a bit of retaliation for the harsh treatment of subsidiaries of EU G-SIBs overseas.

Unfortunately, in the field of resolution planning and MREL, the EU framework does not provide enough information to refer to numerical examples of intervention, as it was possible in the case of the USA above. Lack of transparency is often mentioned as one of the main flaws of the EU resolution planning.[138] Neither resolution plans of G-SIBs drafted by the SRB nor the recovery plans delivered by the institutions themselves are available to the public. The only insight into the resolution planning process was provided by the European Court of Auditors. It stressed that resolution plans are flawed, many requirements do not seem to be implemented, and it is rather improbable that the strategies turn out to be operational.[139] Also De Groen in his report for the European Parliament points to such inaction, especially on the part of the SRB.[140] No indication whatsoever has been reported that relevant authorities made use of their discretion and took any radical decisions regarding impediments to resolvability, or the assessment of recovery plans. No attempt to individually adjust G-SIBs' operations or structure was noticed. Also in the aspect of the additional layer of MREL, nothing seems to happen. SRB defined the process of setting it,[141] but as MREL decisions are confidential one can only wonder whether this procedure was actually utilized.

An assessment of supervisors' action or inaction in the context of the SREP exercise can be conducted using the data on SREP results that EU banks agree to

136 ESRB, 'Overview of national capital-based measures', as of 1 October 2021, www.esrb.europa.eu/national_policy/systemically/html/index.en.html, accessed 13 December 2021

137 ECB, 'List of supervised entities as of 1 October 2021', www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.listofsupervisedentities202111.en.pdf?3cc68294ea26e5820547f77d05886b26, accessed 20 December 2021.

138 Alexander Lehman, 'European Bank Resolution Plans Are Undermined by a Lack of Transparency', *Bruegel Blog Post*, 15 May 2019, www.bruegel.org/2019/05/european-bank-resolution-plans-are-undermined-by-a-lack-of-transparency/, accessed 20 December 2021.

139 European Court of Auditors, 'Special Report: Single Resolution Board: Work on a challenging Banking Union task started, but still a long way to go', 2017.

140 Willem Pieter De Groen, 'Impediments to resolvability of banks? Banking Union Scrutiny', *Analysis for European Parliament*, December 2019.

141 SRB, 'Minimum Requirement for Own Funds and Eligible Liabilities (MREL). SRB Policy under the Banking Package', May 2021, p. 15.

Table 4.4 Changes in Pillar 2 Requirement for EU G-SIBs

Year of SREP decision	*EU G-SIBs and their Pillar 2 Requirement*							
	Deutsche Bank	*BNP Paribas*	*BPCE*	*Crédit Agricole*	*Société Générale*	*Banco Santander*	*UniCredit*	*ING*
2016	2.75%	1.25%	1.5%	1.5%	1.5%	1.5%	2.5%	1.75%
2017	2.75%	1.25%	1.5%	1.5%	1.5%	1.5%	2%	1.75%
2018	2.75%	1.25%	1.75%	1.5%	1.75%	1.5%	2%	1.75%
2019	2.5%	1.25%	1.75%	1.5%	1.75%	1.5%	1.75%	1.75%
2020	2.5%	1.25%	1.75%	1.5%	1.75%	1.5%	1.75%	1.75%

disclose. Importantly, they usually consent to reveal the P2R, the level of which constitutes the most relevant quantitative outcome of SREP. Table 4.4[142] shows P2R levels of EU G-SIBs.

In four years only in five instances (underlined) did supervisors decide to alter the level set in a previous year. This is especially striking as SREP constitutes the most comprehensive assessment of an individual firm's operations, encompassing business model, governance, risk management, capital, and liquidity and funding.[143] One could expect that with the rapidly changing world of banking and dynamic development of EU G-SIBs, a more diversified approach would be applied. It is hard to believe that Santander, BNP Paribas, Crédit Agricole, and ING remained static throughout these years. Similarly, the same level of P2R at Santander and Crédit Agricole implies that in all the above-mentioned areas these G-SIBs were fairly similar. Also, all these banks were required to hold higher levels of P2R capital than BNP Paribas, a bank certainly not known for its impeccable conduct. Some could argue that maybe the P2R levels seem similar and undiversified, but the overall levels of required CET1 capital change from year to year – for instance Deutsche Bank was expected to hold 10.69% in 2018 and 11.82% in 2019. However, as the banks themselves stress, these changes are not attributable to supervisors' diligent individual assessment but to the gradual phase-in of the capital conservation buffer and G-SII buffer, both independent of SREP assessment.[144]

Apart from a reluctance to adjust the rules in the context of an overall SREP assessment, the use of stress tests, also one of the elements of assessment, demonstrates similar tendencies to the US equivalents. Both EBA and ECB stress tests,

142 Data was gathered from these banks' websites and press releases and ECB, 'Pillar 2 Requirement 2020', 28 January 2021, www.bankingsupervision.europa.eu/banking/srep/html/p2r.en.html, accessed 20 December 2021. The table logically only includes G-SIBs that decided to disclose this particular capital layer.

143 See Section 3.7.2.2.

144 See Deutsche Bank, 'Deutsche Bank Publishes 2019 SREP Requirements', 28 February 2019, www.db.com/news/detail/20190228-deutsche-bank-publishes-2019-srep-requirements?language_id=1, accessed 27 December 2021.

taken into account in SREP, become easier and easier each year.[145] They are also visibly more lenient than the US CCAR process, which already shows signs of gradual dismantling.[146]

4.2.3 Obstacles for the application of supervisory discretion

Supervisory inaction in the context of individual adjustments of regulation on G-SIBs seems to cancel out the potential of supervisory discretion to tailor overly general rules binding these entities, both in the USA and in the EU. Supervisors simply do not use the discretion granted to them and miss the chance to create a more individualized framework for these biggest and most systemically risky banks. Why are they abstaining from using the tools at their disposal? Apart from behavioral reasons,[147] exercising of supervisory discretion seems to be stalled by several G-SIB-specific obstacles that successfully disincentivize regulators from acting. The overarching one – legal uncertainty haunting financial regulation – gives foundations for more specific concerns.

4.2.3.1 Uncertainty

Uncertainty is looming over all types of legal discretion. Namely, granting powers to public authorities to adjust legal provisions could potentially undermine the notion of certainty of the law, one of the fundaments of modern democracies and the rule of law.[148] In general, subjects of the law should be aware of how to conduct themselves in order to remain in compliance with the binding regime.

This is especially tricky in the field of financial regulation. Uncertainty is not a new phenomenon in this area of law. The overwhelming complexity of legal provisions applying to even more complex entities has created ambiguities somehow inherent in the financial regulatory framework. Both regulators and the regulated institutions try to clarify these rules. The former issue guidelines or interpretations, and the latter spend billions on compliance, just to make sure that they follow the right path in the maze of financial provisions. Fear of this legal uncertainty in the area of banking, and especially G-SIB-level banking, is also understandable, given the potential for externalities that could result from such unpredictability. Also in this vein, supervisors need to take into account the fact that their discretionary actions could result in disclosure of information and influence given entity's market position.

145 Alexander Weber, 'The EU's Bank Stress Test Was Too Easy on Lenders, Auditors Say', *Bloomberg*, 10 July 2019.

146 For CCAR dismantling see Section 3.7.2.1. and for comparison between EBA test and other tests see ECB, 'SSM wide stress test 2018. Final Results', p. 13.

147 See Section 4.1.3.

148 For the role of legal certainty in the EU see for instance Paul Craig, *EU Administrative Law*, Oxford Scholarship Online, 2012.

In the case of supervisory discretion in the G-SIB context, these concerns are even more valid for two main reasons: coordination issues and vague guidelines to exercise discretion. First, coordination problems in the decision-making process involving several supervisory institutions can serve as a deterrent from the exercising of said discretion. In Chapter 3 the fragmentation of supervisory powers among different bodies both in the USA and in the EU was mentioned. Indeed, G-SIBs are supervised by a network of various agencies, often not that able or eager to communicate with one another. However, the fragmentation itself does not seem to constitute the major reason for observed inaction, as long as the decision in a given aspect is left to one entity only.[149] It is the complex decision-making procedures requiring action from several authorities that could be problematic. Table 4.5[150] shows how many regulators are involved in the process of exercising G-SIB-related supervisory discretion in each G-SIB-specific legal area.

For instance, at the international level in the aspect of designation, the path to exercising supervisory judgment is very bumpy.[151] First, home and host supervisory authorities have to suggest adjustments to the arbitrary indicator-based score. Then the BCBS should develop recommendations on that matter and pass them to the FSB. Lastly, the FSB and national authorities, after (again) consulting the BCBS, make the final decision. This complexity is certainly discouraging and could contribute to the general inaction when it comes to the adjustment of G-SIB lists. In the area of resolution, it looks similarly complicated at the national level. In the US, it requires both the Fed and the FDIC to 'jointly' determine that a given institution should be subject to certain restrictions. Given the different characters of these two agencies, nicely portrayed by the contrast between their leading figures during the crisis – Sheila Bair and Ben Bernanke – it requires a lot of dedication to reach a common outcome. However, this potential issue does not seem too problematic if compared to the institutional complexity of the assessment of recovery plans and resolvability in the EU. Such evaluation and decision regarding potential consequences can be especially tricky in the case of group resolution, and so regarding G-SIBs. In such a situation the decision has to be reached jointly by the group-level supervisor and supervisors of subsidiaries, after consulting supervisory colleges and supervisors of significant branches.[152] The need for coordination of so many bodies can slow down or even hinder the swift and careful assessment of such plans. In 2018 the European Court of Auditors stressed this problem in its report 'The operational efficiency

149 Actually, it can even be perceived as beneficial and helpful in the context of combating regulatory capture, because a larger number of supervisory institutions makes it more difficult to influence them. See Lawrence Baxter, 'Capture nuances in the contest for financial regulation', *Wake Forest Law Review*, 2012, 47.

150 This table is a bit simplified for the sake of clarity: instead of using the EU law term of competent authority it translates it into supervisory authority, as this is in most cases synonymous (sometimes the competences are shared by central banks, etc.).

151 BCBS G-SIB Methodology 2018, point 34.

152 Art. 8 BRRD.

Table 4.5 Entities involved in the supervisory discretion proceedings

Legal areas	*Supervisory entities involved*		
	International	*US*	*EU*
Designation / bucket allocation	• Home and host authorities of given institution • BCBS • FSB	• Federal Reserve Board	• National authorities
G-SIB buffer	• Home and host authorities of given institution • BCBS • FSB (derived from designation procedure)	• Federal Reserve Board	• National authorities
G-SIB leverage ratio	• Home and host authorities of given institution • BCBS • FSB (derived from designation procedure)	-	• National authorities
Resolution planning	-	• Federal Reserve Board • Federal Deposit Insurance Corporation	• Supervisory authority • Resolution authority • Supervisory authorities of significant branches • Resolution authorities of significant branches • Supervisory authorities of subsidiaries • Resolution authorities of subsidiaries • Supervisory colleges • Resolution colleges
TLAC/MREL	-	• Federal Reserve Board	• Resolution authority
Pillar 2 (stress testing)	-	• Federal Reserve Board	• ECB Banking Supervision • Joint Supervisory Teams • Supervisory colleges

of the ECB's crisis management for banks.[153] Lastly, coordination of the stress testing and SREP process can also seem institutionally burdensome. Apart from

153 European Court of Auditors, 'Special Report: The operational efficiency of the ECB's crisis management for banks', 2018.

the involvement of the ECB and joint supervisory teams (JSTs), encompassing representatives of the ECB, and national authorities, the supervisory college of a given entity is also to be engaged in the process. Tensions between these bodies can hinder action towards a more individualized approach to the Pillar 2 Requirement, for instance.

Looking at Table 4.5, it could be argued that actually in the majority of legal areas it is only one authority responsible for the exercising of supervisory discretion, so the coordination problems do not apply in all cases. This is indeed true. However, another technical problem arises in respect to all authorities (both solely and collectively equipped with judgment powers), and it also contributes vastly to the uncertainties in the context of G-SIB-related supervisory discretion. Namely, guidelines and conditions to make use of supervisory adjustment tools are very vague, un-uniform, and leave the authorities exposed to unpredictability.

Starting with conditions, what is really striking is the fact that there are almost none. Legislators make the exercise of supervisory discretion conditional only in two cases. First, the BCBS stresses in its methodology for designation that judgment in this area should be utilized only in exceptional instances and if it has a material impact on the treatment of a specific entity (for example changes its G-SIB surcharge).[154] However, such conditionality does not find reflection in the national designation procedures. The second set of conditions is to be found with regards to resolution planning aspects. Some impediments to resolvability/deficiencies of a resolution plan must persist for the regulators to be able to implement discretionary measures.

Consequently, apart from the above-mentioned prerequisites, supervisors have large room for maneuver to implement their discretion. On one hand, this could be seen as placing a lot of trust in regulators and hence as leaving them with the decision. On the other, a lack of such prerequisites could cause confusion and uncertainty and consequently lead regulators to carefully avoid using supervisory discretion at all. The latter option is especially probable when lack of conditionality is combined with the lack or vagueness of guidelines – aspects that should be taken into account when exercising granted discretion.

In the provisions granting supervisory discretion in the G-SIB context, guidelines are certainly either missing or ambiguous. There are no guidelines for instance in the context of amendments to G-SII bucket allocation and the level of G-SII buffer prescribed by Art. 131(10) CRD. This provision mentions only 'sound supervisory judgment', which is rather difficult to be perceived as a guideline. Further, many aspects to be taken into account are essentially repeating indicators of designation methodologies. The Federal Reserve Board may apply all the designation and G-SIB surcharge provisions to an entity based on its size and level of complexity, both of which are included in the indicator-based assessment.[155] Also, some guidelines shift enormous responsibility to the

154 BCBS G-SIB Methodology 2018, points 30 and 35.
155 12 CFR § 217.400 (c).

supervisor that is supposed to use discretion. In the context of impediments to resolvability, the BRRD requires that by introducing adequate measures the resolution authority shall take into account the 'effect of the measures on the business of the entity, its stability and its ability to contribute to the economy'.[156] No wonder that the agency would rather avoid implementing discretionary measures if it essentially has to ensure no adverse effects on the bank's contributions to the real economy. Some guidelines are also very vague. For instance, in the SREP judgment, 'banks' specificities' are to be taken into account.[157] The whole SREP exercise is about banks' specificities, as it is conducted on an individual basis, so it is hard to comprehend what aspects are hidden behind this term. Even the guidelines that actually are on point, such as those advising supervisors to consider business model, funding model, risk profile, or organizational structure, are just thrown into the legal norms without any pattern or deeper thought. For instance, how is organizational structure relevant for setting TLAC but not for MREL?[158]

4.2.3.2 Arbitrariness

One of the detailed concerns stemming from legal uncertainty, appearing whenever individually oriented supervisory discretion is to be exercised, is the potential arbitrary character of the rules resulting from such discretionary processes. The Oxford Dictionary defines the adjective 'arbitrary' as 'not seeming to be based on a reason, system, or plan and sometimes seeming unfair'. In the case of G-SIBs and their framework, we face the potential danger that the rules will be arbitrary, still will not reflect the individual character of these entities, and instead will pose further threats to the financial system. That case could be easily made especially in the light of the above-described uncertainty concerns, stemming from the coordination problems between agencies and the lacking or vague guidelines to exercise granted powers.

This fear of arbitrariness is universal for both sides of the barricade – for G-SIBs, as well as for their regulators. The former ones can be worried about the outcome of discretionary adjustments, as it remains unpredictable to a large extent. They could additionally be anxious about what market reactions these amendments may cause. On the other hand, the supervisors' reason for concern is the potential suspicion of arbitrariness. From their perspective, even if they feel entirely capable of adjusting G-SIB-oriented provisions in a fair and reasonable way, the concern that they will be accused of arbitrariness persists. In this vein, regulators also fear lengthy court cases challenging their discretionary actions. Example of the FSOC, which designated several non-bank companies as

156 Art. 17(4) BRRD.

157 ECB, 'Supervisory methodology', www.bankingsupervision.europa.eu/banking/srep/2021/html/ssm.srep202101_supervisorymethodology2021.en.html, accessed 20 December 2021.

158 It is included in Principle (ii) of TLAC Principles, but not in Art. 45d BRRD.

systemically important and got entangled in court proceedings with MetLife[159] on this matter, could serve as a warning in this respect.

4.2.3.3 Regulatory capture

Regulatory capture[160] is common in many areas of law. Why does it constitute an obstacle for the discretionary G-SIB-oriented adjustments to be introduced? First, it has been broadly recognized that such capture is typical for the financial world.[161] Regulatory capture appears both at the international level of the BCBS[162] and nationally. In addition, the probability of capture also increases proportionally to the level of granted discretion,[163] which is especially crucial in the case of the G-SIB framework, where vast powers are assigned to supervisors. Further, it is commonly known that the more sophisticated the industry, the easier it is to capture the authorities,[164] and G-SIBs constitute arguably the most complex entities alongside technology giants such as Microsoft or Amazon. G-SIBs create day-to-day supervisory relationships (by means of on-site inspections or the functioning of JSTs in the EU) and provide regulators with essential information. Their cooperation is so close that it is sometimes hard to establish who pursues whose interests.[165] G-SIBs establish their own supervisory environment.

Lastly, historical experiences of regulators captured by G-SIBs can constitute grounds for current concern. As Stiglitz indicates, President Reagan appointed Alan Greenspan as the Chair of the Fed because the latter was fond of deregulation and shared the deregulatory desires of his then employer – JP Morgan.[166] Henry Paulson also came to the Treasury from industry, namely from Goldman Sachs.[167] Even though Timothy Geithner actually did not have a private sector

159 Kathleen Scott, 'MetLife SIFI Lawsuit dismissed; FSOC designation process may change', *Norton Rose Fulbright, Regulation Tomorrow*, 7 February 2018.

160 See Section 4.1.1.

161 Baxter, '"Capture" in Financial Regulation', p. 184.

162 Kevin Young, 'Transnational regulatory capture? An empirical examination of the transnational lobbying of the Basel Committee on Banking Supervision', *Review of International Political Economy*, 2012, 19/4; Theodore Cohn, 'The Effects of Regulatory Capture on Banking Regulations: A Level-of-Analysis Approach', in Anil Hira, Norbert Gaillard, Theodore Cohn (eds), *The Failure of Financial Regulation. Why a Major Crisis Could Happen Again,* Palgrave Macmillan, 2019, p. 93.

163 Daniel Tarullo, 'Financial Regulation: Still unsettled a decade after the crisis', *Journal of Economic Perspectives*, 2019, 33/1, p. 70.

164 Hendrik Hakenes, Isabel Schnabel, 'Regulatory Capture by Sophistication', *Beiträge zur Jahrestagung des Vereins für Socialpolitik 2013: Wettbewerbspolitik und Regulierung in einer globalen Wirtschaftsordnung - Session: Theory of Banking Regulation*, February 2013, G19-V1.

165 Armour et al., *The Principles*, p. 560.

166 Joseph Stiglitz, *Freefall: America, Free Markets, and the Sinking of the World Economy*, WW Norton, 2010.

167 Dubbed Government Sachs due to the pattern of former Goldman executives becoming regulators. See *Dealbook by The New York Times*, 'The People From "Government Sachs"', 16 March 2017.

background, some G-SIB executives called him 'Timmy', which indicated a rather cozy relationship with these entities.[168] In 2014, disturbing recordings of New York Fed supervisor Carmen Segarra, who was supposed to oversee Goldman Sachs on-site, were revealed.[169] The situation with capture looks pretty similar in the EU, even though there is no 'Wall Street' here to be demonized and accused of corrupting supervisors. As for the legislators' perspective, the quote by then European Commission President Jean Claude Juncker 'we all know what to do, but we don't know how to get re-elected once we have done it'[170] pretty much sums it up. The ECB, even though its independence both in monetary and supervisory capacities is often underlined,[171] also remains under many influences. The obvious industry influence from the side of the G-SIBs is often supported by additional national pressures. It is no secret that both France and Germany tend to favor their national champions (BNP Paribas, SocGen, Crédit Agricole, and Deutsche Bank respectively). In this vein, general national bias remains pretty strong, and one has to remember that national authorities still have major powers in the area of banking regulation.

Undeniably, given all these above-mentioned aspects, the potential for regulatory capture in the context of G-SIB-specific supervisory discretion constitutes one more problem to be addressed before the discretionary framework for G-SIBs can be used as it should be. Without tackling this issue, supervisors may never dare to exploit the potential of this discretionary tool, because as long as they remain inactive in said area, the probability they will be targeted for capture is low.

4.2.4 How to make supervisory discretion work

Supervisory discretion to adjust material provisions more individually is inherently built into G-SIB-specific regulation, both in the USA and in the EU. However, it is hardly exercised by the regulators,[172] even though this more adequate tailoring of G-SIB-oriented rules seems necessary and would constitute a vast improvement of the G-SIB legal framework in several different aspects, from preventing G-SIBs from stretching general rules to allowing them to boost the real economy in a crisis.[173] Impediments to exercise this discretion include legal uncertainties as well as fear of the arbitrary character of drafted rules stemming

168 Mike Mayo, *Exile on Wall Street: One Analyst's Fight to Save the Big Banks from Themselves,* Wiley, 2011, p. 6.

169 *This American Life,* 'The Secret Recordings of Carmen Segarra', 26 September 2014, www.thisamericanlife.org/536/the-secret-recordings-of-carmen-segarra, accessed 20 December 2021.

170 *The Economist*, 'The Quest for Prosperity', 15 March 2007.

171 Chiara Zilioli, 'The Independence of the European Central Bank and Its New Banking Supervisory Competences', in Dominique Ritlend (ed), *Independence and Legitimacy in the Institutional System of the European Union*, Oxford University Press, 2016.

172 See Section 4.2.2.

173 See Section 4.2.1.

from it and increased potential for regulatory capture.[174] Fortunately, there are several relatively simple ways that could mitigate or even eliminate these issues. Namely, to alleviate obstacles and consequently allow supervisors to use the tools at their disposal (and so to create a more individualized framework for G-SIBs), several aspects ought to be addressed: from funding of supervisors to independent international agency overseeing exercising of discretion.

4.2.4.1 Funding, training, and compensation of supervisors

There are actual people behind the regulatory power that should be materializing in the form of a more individualized legal framework for G-SIBs. These people are subject to both internal and external influences.[175] Not only do they tend to take their private interests into account, but also often succumb to external pressures. Incentives define supervisory action or inaction, regardless of the area of law.[176] In the context of G-SIB-related supervisory discretion, the reform of regulatory agencies is vital to mitigate all of the obstacles that keep authorities from exercising their powers. In this vein, the focus of this mission to make supervisors active should be on the positive incentives, from funding of said agencies and training of their staff to more individual aspects appealing to human nature, such as compensation and reputational advantages.

As for funding of regulatory agencies, this area seems to remain largely neglected since the GFC. According to the post-crisis World Bank report, the financial system's depth in the USA amounted to $42 trillion, whereas the regulators' budget was equal to $6.5 billion.[177] Even lower ratios were observed in the UK, Germany, and Switzerland.[178] In the case of individual G-SIBs, it looks even worse. Citigroup's net income was twice the size of the budget of all its US domestic regulators, while the record difference could be noted between Deutsche Bank and German regulators, whose budget was 28 times smaller than the income of this G-SIB.[179] The situation has not changed much since then.[180] The gulf between supervisors and the financial entities persists. Even though the monetary levels of the public and private sector will never be equal, such a gap in funding could certainly impact regulators' ability to evaluate data received from financial institutions and consequently to supervise them

174 See Section 4.2.3.

175 Armour et al., *The Principles*, p. 555.

176 Julia Black, 'Learning from Regulatory Disasters', *LSE Law, Society and Economy Working Papers*, 2014/24, p. 5.

177 It gives a ratio of 15.6% (regulators' budget as percentage of financial system's depth). Armour et al., *The Principles*, p. 536 and World Bank, 'Global financial development report 2010', 4 November 2010.

178 9.5%, 2.7%, 2.5% respectively. See Ibid.

179 Armour et al., *The Principles*, p. 82.

180 Even though these exact calculations were not conducted in the 2019 exercise, the data indicates a similar tendency. See World Bank, 'Global financial development report 2019/2020', 6 November 2019.

diligently and – what in this contribution is most relevant – to adjust the G-SIB-oriented rules adequately.

What is also of importance in terms of funding apart from its size is the source. Funding coming directly from the government can further politicize already politically influenced agencies. The threat of funding cuts could determine the direction of supervisory actions.[181] Therefore the self-funded scheme represented by the Fed or the industry-funded version could be perceived as favorable solutions. A recent idea of paying for market transactions – a small financial transaction tax, part of which would go to the US Securities and Exchange Commission (SEC) and Commodity Futures Trading Commission (CFTC) – constitutes a good example of such reasonable increase in funding. It would both boost the supervisory budget and help eliminate predatory trading.[182]

In relation to money there are two further issues that require attention. As it has been rightly pointed out by many scholars, the number of regulatory staff is also not proportional to the workload that they are supposed to complete.[183] The 2019 report by the World Bank shows that even though banking assets grew immensely in the last years, it was not proportionally reflected in an increasing number of supervisors.[184] Another issue arises when it comes to supervisory training. As Baxter points out, 'we need regulators who really understand the businesses that they are regulating'[185] and so they have to be adequately trained. Again, this is not the case now. Only 43% of supervisors in high-income countries have a postgraduate degree such as an MBA. Also, they have been through only 34 hours of on-the-job training (six hours less than in 2010), and only 34% of them have more than ten years of supervisory experience (down from 45%).[186] Each of these aspects separately could be explained and easily mitigated, but all of them combined create a relatively grim picture of supervisors' training and expertise. Enhancing supervisory skills, competence, and know-how on G-SIBs, their functioning and operations could vastly contribute to eliminating supervisory reluctance to act in this context, as the need to adjust G-SIB-specific rules would be better understood.

Apart from the general reform of the agencies (funding and training), probably the strongest incentivizing factors could be those appealing to individual, human aspects of regulators' work. First, the main reason for the so-called 'revolving doors' problem is the striking gap between salaries in the public and private

181 Black, 'Learning from', p. 7.

182 Better Markets, 'Special Report "Ten Years of Dodd-Frank and Financial Reform"', 21 July 2020, https://bettermarkets.com/sites/default/files/images/BetterMarkets_DoddFrankReport.pdf, accessed 27 December 2021, p. 63.

183 Cristie Ford, 'Principles-based securities regulation in the wake of the Global Financial Crisis', *McGill Law Journal* 2010, 55/257, p. 289.

184 Figure 12a) in Deniz Anginer et al., 'Bank Regulation and Supervision Ten Years after the Global Financial Crisis', *World Bank Group Policy Research Working Paper*, October 2019, 9044, p. 22.

185 Baxter, '"Capture" in Financial Regulation', p. 195.

186 Anginer et al., 'Bank Regulation and Supervision', p. 22.

sector.[187] Again, as with funding, it probably is not possible for supervisory agencies to reach the compensation level of G-SIBs, but it would certainly be helpful to minimize this disparity. Also a concept of performance-based compensation is worth considering. It is difficult to find a compromise in this area that would allow supervisors to still feel safe in their jobs. However, an idea of paying them partially with the debt and equity of the entities that they oversee has emerged.[188] Such a strategy would not only potentially increase the overall compensation, but also supervisors would be more attentive when looking into G-SIBs' matters. Their own money would be at stake. On the other hand, it could exert disproportional pressure on regulators.

Second, not only monetary compensation can help incentivize supervisors to overcome the passive attitude. It has been academically proven that reputational motivation also has an impact on the quality of supervisory actions.[189] Unfortunately, supervisors are mostly publicly blamed when something goes wrong; rarely do they hear praise when everything is relatively stable. That should change. Now, as regulators are granted discretion in the area of G-SIB-related rules, they should make use of it, and if they do, they deserve praise for it. As their hands are not tightened any more, they can react faster and provide more certainty in times of sudden shock. Each of the G-SIBs would be visibly, individually prepared for different adverse scenarios. Furthermore, as supervisory discretion would make regulators act at the individual level, it could automatically disperse the interests of the now united G-SIB-focused lobbying group. G-SIBs' interests would not be aligned, as their individual specialization and fields of operations would prevail (as it was in the context of custodian banks and leverage ratio).[190] Consequently, supervisors themselves could contribute to the mitigation of regulatory capture. Such actions would help fix their reputation and in itself incentivize them to further pursue an active approach. In the end, regulators' reputation was tarnished mostly by their conduct in the context of G-SIBs – how better to repair it than by adjusting G-SIB-specific regulation adequately?

4.2.4.2 Choice architecture and system of guidelines

Discretion could be exercised more often if lack of action was not considered a default option.[191] In this vein, a nudge to utilize discretionary tools would be

187 Michael Barr, Howell Jackson, Margaret Tahyar, *Financial Regulation Law and Policy*, West Academic, 2018, p. 887.

188 Todd Henderson, Frederick Tung, 'Pay for regulator performance', *Southern California Law Review,* 2011, 85.

189 On the example of the Food and Drug Administration in the US see Daniel Carpenter, *Reputation and Power: Organizational Image and Pharmaceutical Regulation at the FDA*, Princeton University Press, 2010.

190 Federal Register. Volume 85, Issue 17, 27 January 2020 (85 FR 4569).

191 See Section 4.1.3.

necessary.[192] Such a nudge could be achieved simply by making the use of discretion sound like default or required choice. Paying attention to how provisions are formulated from the behavioral perspective would be the key. For instance deleting the 'exceptional case' requirement for exercising discretion from the BCBS designation methodology[193] would eliminate the implication that default (no use of discretion) is recommended. Also for example, the wording of art. 45d(3) BRRD prescribing that the additional G-SII requirement should be imposed 'only' when two further conditions are met suggests that leaving it be is the more common option. Slightly reformulating such provisions could eliminate or mitigate the impact of behavioral triggers that the supervisors are exposed to otherwise.

Another aspect linked to the wording of legal provisions is described above as problematic and undermining legal certainty, creating room for arbitrariness and so for regulatory capture. Namely, it is the lack of a clear set of guidelines for exercising supervisory discretion in the G-SIB context. Consistent, uniform, and comprehensive indicators to be looked at in this process could motivate regulators to act and simultaneously provide legal certainty to the G-SIBs and to the market.[194] As described in Section 4.2.3.1. above and throughout Chapter 3, the current system of guidelines is far from perfect. It could be improved in several relatively simple steps, though.

First, it is unnecessary and confusing when the discretion indicators simply repeat those already included in the designation methodologies. It seems pointless to take the size into account again when it comes to amending the level of US G-SIB buffer, if, by definition, size has been considered in the process of designation.[195] Similarly, the BCBS guideline to also consider 'the impact of the bank's distress or failure'[196] repeats the general aim of the whole G-SIB designation framework – the systemic importance – and thus such impact should be automatically mirrored by the designation and bucket placement. Why should supervisors take it into account again by exercising the discretion, at the same time undermining the whole indicator-based process?

Second, as derived from the need not to repeat already utilized indicators, the system of guidelines for supervisors should include novel aspects largely omitted by the designation framework. They could be both of qualitative and quantitative nature. As for the latter ones, the BCBS itself suggests potential 'ancillary indicators' for regulatory judgment, such as total liabilities, retail funding, total gross revenue, foreign net revenue, or number of jurisdictions a G-SIB operates in.[197] Also short-term funding or total equity could be added. Some even suggested that in this context supervisors should look into market signals, such as stock

192 The concept of nudges is perfectly described in the book by Richard Thaler and Cass Sunstein. See Thaler, Sunstein, *The Nudge*.

193 BCBS G-SIB Methodology 2018, point 30.

194 Armour et al., *The Principles*, p. 570.

195 12 CFR § 217.400 (c)(2).

196 BCBS G-SIB Methodology 2018, point 30.

197 See Section 3.2.1.

prices or increases in interest rates on junior debt.[198] It would also be advisable to utilize some novel theories – for instance network-sensitive regulation[199] focusing on systemic importance from a different angle. Namely, it demonstrates that G-SIBs occupy different places in the network of systemic interdependencies, and depending on that spot their contagion potential may vary. Also a different approach to complexity, taking into account intrafirm structure, could be advisable.[200] Such additions could complement all the provisions that call for including the 'systemic footprint' guideline[201] without really explaining what is meant by it. In this vein, the OFR's Contagion Index could also be of help as a further quantitative contagion measure.

However, qualitative guidelines should also play an important role to make up for the deficiencies of the indicator-based approach. For instance, some significant aspects of G-SIBs' functioning still remain omitted when it comes to their regulation. Supervisors in the exercise of their discretion could look into corporate structure and potential capital flows within the conglomerates. Additionally, risk profile is absent from the automatic indicators and often appears in the guidelines already existing in the system.[202] Furthermore, both business model and funding model are worth taking into account in the exercise of supervisory discretion, as they give a more holistic overview of the entire entity. One could argue that funding is already mentioned in the qualitative aspects, but the measures recommended there do not provide a broad perspective on this matter, which is crucial to understand a given G-SIB's operations and to adjust the rules accordingly. Such a compilation of qualitative and quantitative guidelines would give supervisors a clear path to follow without depriving them of the discretionary element.

The third important change that would contribute to the improvement of this system is the inclusion of G-SIBs in the process. Cooperation with them in the field of individual regulatory adjustments could be key to its success.[203] Some would argue that such an approach would further strengthen the regulatory capture problem, instead of eliminating it. However, this cooperation should be perceived differently. The main motivation behind G-SIBs' lobbying for regulators to stay away from their discretionary powers could be uncertainty, as they simply do not know what outcome to expect from supervisory action. If G-SIBs realized

198 Stijn Claessens, Laura Kodres, 'The Regulatory Responses to the Global Financial Crisis: Some Uncomfortable Questions', *IMF Working Paper,* 2014, 14/46.

199 Luca Enriques, Alessandro Romano, and Thom Wetzer, 'Network-sensitive financial regulation', *The Journal of Corporation Law*, 2020, 45/2.

200 See Robin Lumsdaine et al., 'The intrafirm complexity of systemically important financial institutions', *Journal of Financial Stability*, 2020.

201 For international designation see BCBS G-SIB Methodology 2018, point 30; for TLAC see Principle (ii) of TLAC Principles; for Pillar 2 see Principle No. 1 Basel Core Principles.

202 Risk profile is mentioned as a guideline in almost all areas of supervisory discretion – from designation (see 12 CFR § 217.400 (c)(1)) to G-SIB buffer (see 12 CFR § 217.400 (c)(1)), TLAC (see Principle (ii) of TLAC Principles), and Pillar 2 (see Principle No. 1 Basel Core Principles).

203 For advantages of cooperation with subjects, even to the level of self-regulation, see Armour et al., *The Principles*, p. 546.

that such adjustments could be beneficial for them in the long term, it should disincentivize them from attempting to 'capture' regulators. Such a realization would only come from cooperation with supervisors and overall transparency of the framework.[204]

Lastly, someone could raise the issue that such guidelines and great reliance on supervisory discretion could actually lead to the gradual dismantling of these G-SIB-oriented rules, which surely would be detrimental to financial stability. Hence, does the framework include any safeguards to ensure this will not happen? Actually yes – practically each regulatory area already contains some measures that would render such dismantling impossible. For instance, striking a G-SIB off an FSB list completely is subject to the highest scrutiny;[205] similarly, lowering a US G-SIB buffer can only go as far as the lowest bucket allows.[206] Also, MREL for G-SIIs can only be adjusted above the legally prescribed minimum.[207] Consequently, no danger of supervisors excessively lowering these standards exists.

There are some humble signs that regulators are slowly leaning towards exercising discretion. No industry outcry has so far been noted in this regard. For instance, when the leverage ratio calculation was amended to stop penalizing custodian banks for their business model, no other banks perceived this rule as arbitrary.[208] Similarly, when an asset cap was placed on Wells Fargo in the aftermath of the fake accounts scandal, not even the involved G-SIB criticized the decision.[209] It is time that supervisors dare to use discretion more often, not only in extreme cases, in order to tailor the G-SIB-oriented framework to their individual features. The above-mentioned improvements to the guideline framework could significantly mitigate uncertainties surrounding discretion, and so alleviate the fears of arbitrariness and decrease the danger of regulatory capture. With clear and comprehensive guidelines, everyone would be allowed to examine what led supervisors to introduce a given adjustment.

4.2.4.3 Concept of ultimate decision maker

Clarity in exercising supervisory discretion is necessary not only in the area of guidelines to be taken into consideration while making the final decision. In the case of multiple bodies engaged in the process, it is equally important for the regulators to know which agency has the last word. The designation of an 'ultimate decision maker' would have several advantages. First, it could mitigate

204 See Section 4.2.4.4.
205 BCBS G-SIB Methodology 2018, point 36.
206 12 CFR § 217.400.
207 Art. 45d BRRD.
208 At least I was not able to find any critical voices from the banking industry.
209 Hannah Levitt, 'Wells Fargo Asset Cap Is Now One of the Costliest Bank Penalties', *Bloomberg*, 24 August 2020.

the inter-agency coordination problems mentioned above.[210] Even if more bodies were consulted or informed about exercising discretion, the final word would belong to one chosen entity. Second, such a solution would not take away the advantages behind regulatory fragmentation, such as mitigating regulatory capture. This involvement of many agencies would remain; only the final decision-making would be more centralized. Third, this amendment could simplify the assigning of accountability and thus positively impact regulators' incentives.

So far the decision-making process with regards to the exercise of discretion has been very scattered. For instance, when it comes to designation and bucket allocation according to the BCBS methodology, the final decision lies with 'the FSB and national authorities'.[211] One could argue that the FSB actually consists of national authorities, so it is not that complex. However, it decides as a whole according to a voting procedure, which means that the authorities would have to decide twice – once on their own, and once as members of the FSB.

Similarly, in the case of the Fed and the FDIC, which are supposed to make 'joint determination'[212] about US G-SIBs' resolution plans, granting the final word to one of these agencies would be helpful. The Fed and the FDIC have a long history of disagreement and contradicting decisions.[213] Their mutual resentment and different character and goals are likely to result in a decision-making deadlock and thus lay the foundation for inaction when it comes to living will assessment.

In that respect, a good example comes from the EU. Even though there are still authorities to be consulted, one body is selected to make the final decision and impose given measures. For instance, in the case of removing impediments of resolvability it is the resolution authority (after consulting a competent authority) that decides about the measures to be imposed.[214] Similarly, measures addressing deficiencies in a recovery plan are ordered by the competent authority.[215] However, the situation definitely requires improvement when it comes to group supervision and resolution (so the aspect particularly relevant for G-SIBs). In the case of group recovery plans, the consolidating supervisor has to make the assessment jointly with the competent authorities of the subsidiaries,[216] and at the same time the group-level resolution authority assesses impediments to resolvability with the resolution authorities of the subsidiaries.[217] Even though the involvement of supervisory bodies at the subsidiary level seems essential, the requirement of

210 See Section 4.2.3.1.

211 BCBS G-SIB Methodology 2018, point 34.

212 12 CFR § 243.9.

213 See Section 4.3.1 and for instance Andrew Ross Sorkin, *Too Big to Fail: The Inside Story of How Wall Street and Washington Fought to Save the Financial System and Themselves*, Penguin Books, 2010; Adam Tooze, *Crashed: How a Decade of Financial Crises Changed the World*, Viking, 2018; John Bovenzi, *Inside the FDIC. Thirty Years of Bank Failures, Bailouts, and Regulatory Battles*, Wiley, 2015.

214 Art. 17 BRRD.

215 Art. 6 BRRD.

216 Art. 8 BRRD.

217 Art. 18 BRRD.

joint decision certainly slows down the process and discourages authorities from acting unless absolutely necessary. Granting the power of final decision to one entity would simplify this procedure.

4.2.4.4 Transparency

Once the system of guidelines and clarity of inter-agency coordination lead to the application of discretion, it is necessary for the procedure and its result to be adequately transparent.[218] Transparency of such actions is relevant firstly from the perspective of the credibility of the supervisory framework and legal certainty. The public should be aware of the process G-SIBs are subject to and also of its result, if possible. Naturally, not every result can be disclosed, especially in the context of resolution, as it could trigger an adverse market reaction. However, it seems largely unconvincing when G-SIBs argue that the whole resolution plan assessment, detailed stress test results, or SREP decision in the EU cannot be disclosed. Confidential information could easily be left out and just the result of the supervisory evaluation with justification shown to the public. Transparency during the Global Financial Crisis regarding the capital needs of US G-SIBs turned out to be beneficial both for these entities and the global financial system.

Second, transparency would be relevant in the context of accountability and the evaluation of supervisors' discretionary actions. Therefore, such decisions should include an explanation of which guidelines were utilized and why, as well as macroprudential justification, so often paradoxically omitted in the context of G-SIBs. Currently, for instance in the context of SREP, we receive only the resulting level of Pillar 2 Requirement without any explanation of what played an important role in setting it for this particular entity.[219] Similarly, the feedback letters about US living wills include only dry descriptions of a shortcoming, identical for all the G-SIBs at which one was spotted.[220] Even when EU national authorities use discretion to designate a G-SII, they just point out that supervisory judgment was exercised, with no further justification.[221] Clarity in this respect would not only introduce the necessary certainty of law but also create ground for external independent checks of supervisory discretion.

4.2.4.5 Independent checks

Discretionary framework in the context of G-SIBs could remain incomplete without an external oversight body. Such an entity would mitigate the threat of arbitrariness, deregulation, and potential capture problem, as supervisors would know

218 Luca Enriques, Gerard Hertig, 'Improving the governance of financial supervisors', *European Business Organization Law Review*, 2011, 12; Deniz Igan, Thomas Lambert, 'Bank Lobbying: Regulatory Capture and Beyond', *IMF Working Paper* 2019, 19/171.

219 ECB, 'Pillar 2 Requirement 2020'.

220 Federal Reserve and FDIC, 'Agency Feedback Letters'.

221 ESRB, 'Systemically important'.

that their actions are going to be assessed objectively. Thus, it would also enhance the credibility of regulatory actions in this field. Lastly, an independent checks system could allow for the interests of marginalized groups to be represented in the context of G-SIB regulation.[222]

Of course, a wide array of institutions overseeing financial regulators already exists, including parliaments, auditors, and courts. However, all these entities scrutinize supervisory actions to assess their lawfulness, not the need or efficiency of such action.[223] Also, most of them are in one way or another externally influenced, from representatives that want to be re-elected to auditors and the press that are often sponsored by the financial industry itself.[224] Therefore, a politically and financially independent non-governmental body should be established for the purpose of assessing individual adjustments of G-SIB regulation.

Such an institution could be established at the global level, alongside FSB and BCBS but without their direct influence. Its international character would be justified by the scope and scale of G-SIBs' operations, analysis of which shall constitute the central theme of such agency's work. It should consist of experts in the field, both academics and practitioners out of service. To minimize the danger of capture in the case of this body, its specialists should serve there only for a pre-established term of several years. Further, in order to eliminate the threat of revolving doors, a time period after finishing tenure at the agency should be predetermined when these experts cannot accept a position with the industry or governmental bodies. Conceptually, this entity could resemble 'Sentinel' described by Barth, Caprio, and Levine,[225] only with a much narrower focus.

The main task of such an institution would be to assess the exercise of supervisory discretion in the context of G-SIBs and so to evaluate individually adjusted rules applying to G-SIBs. It could seem like a narrow specialization, but the individual character of G-SIBs is still not sufficiently reflected in the current regulatory framework. Addressing this relatively specific issue could solve many current and future problems with the G-SIB-oriented rules and, consequently, it would be beneficial for the global financial system as a whole, given the role G-SIBs play in it. Additionally, the existence of a body designated to monitor developments in the field would constitute a strong incentive for regulators to pay more attention to it and not to pursue the passive strategy that they are following now.

It can be argued that the recommendation to create yet another agency in the area of international banking could be counterproductive as it opens up the Pandora's box of 'who will regulate regulators'. However, in the context of G-SIBs, it seems crucial to establish a specialized body focusing on these entities and their (hopefully increasingly individualized) regulation. Competences of both

222 See Igan, Lambert, 'Bank Lobbying', p. 24.

223 Baxter, '"Capture" in Financial Regulation', p. 198; Armour et al., *The Principles*, p. 569.

224 Armour et al., *The Principles*, p. 569.

225 James Barth, Gerard Caprio, Ross Levine, *Guardians of Finance: Making Regulators Work for Us*, MIT Press, 2012. For more concepts of external bodies representing various interests see Baxter, '"Capture" in Financial Regulation', p. 198 and on.

FSB and BCBS are much broader, and thus the rules and evaluations of G-SIBs become part of a much larger framework and receive less attention. Also, if the agency met the requirements listed above, the need for a further institution supervising its actions should be minimized.

4.3 Summary

Post-crisis regulation of G-SIBs still remains overly general. However, a tool to address this flaw has been built into the framework. Namely, the vast majority of the provisions[226] include an element of supervisory discretion – regulators are granted a competence to adjust the general rules to the individual features of G-SIBs.

Discretion is a complex phenomenon, though. Placed somewhere between goals-based and rules-based regulatory approaches, it can be used to dismantle legal frameworks under pressure of given industry. Also disclosed discretionary decisions could send unwanted signals to the market. Finally, discretion drags supervisors into the maze of behavioral mechanisms, very often leading to non-ideal results.

However, exercising said discretion in the G-SIB context could bring considerable benefits. This set of competences demonstrates a universal tool potential – not only to tackle the tendency to generalize G-SIB-specific regulation but also to address many other issues that mentioned in the context of G-SIBs. Thanks to these powers, regulators could potentially break up some of the big banks, increase the probably still too low levels of required capital, and tighten the limits on leverage. Also, the application of supervisory judgment would allow them to react fast to potential crisis situations and adjust provisions applying to G-SIBs in order to boost their ability to aid the real economy. Supervisory discretion could additionally prove useful in the process of green transformation.

Even though the way to improve the G-SIB-oriented framework seems to be at hand, supervisors do not make use of their powers. At the international level, designation is based on supervisory judgment only in very rare instances, and these occasions appear mostly due to the fact that the given entity is a 'G-SIB regular' and supervisors want to maintain the status quo. Similarly in the US, regulators did not act to adjust the G-SIB surcharge, nor were they eager to address deficiencies in G-SIBs' resolution plans. The inaction is equally noticeable in the EU. The supervisors rarely choose to exercise judgment in the designation/bucket allocation process. Rare and modest changes in the Pillar 2 Requirement levels confirm this tendency.

The question arises why supervisors do not use this seemingly universal tool to adjust the G-SIB-specific framework. One can identify several serious obstacles in the financial system that prevent them from doing so. The main hurdle is the uncertainty that such discretion causes. Even though unpredictability is not new to

226 See Table 3.6.

the financial law due to the complexity of its provisions and of regulated entities, it is additionally aggravated by the lack of clear and comprehensive guidelines to exercise granted discretion and by the potential coordination problems between regulatory agencies. This uncertainty simultaneously raises fears of an arbitrary character of rules resulting from discretionary decisions. Finally, these uncertainties and supervisory freedom create new opportunity for industry to capture regulators that could be harmful to the whole system. By remaining generally passive in this field, supervisors seem to try to minimize this danger.

Fortunately, these issues stalling the use of supervisory discretion to adjust G-SIB-specific rules could be mitigated by introducing some improvements to this system. First, several reforms would be required in the context of the regulatory agencies. Namely, supervisory bodies should be better funded and staffed with more well-trained professionals. As for individual employees, the compensation gap between the public and private sector (at least in finance) should be narrowed. It would also help if society started appreciating supervisors for their job and not only focused on blaming them once something goes wrong. Such a 'reputational' boost could be almost as important as higher compensation. All these measures would greatly mitigate the threat of arbitrariness linked to discretion-based rules, as well as minimize the danger of regulatory capture.

Second, tendency to lean towards 'default' option should be taken into account while formulating provisions granting discretion. Regulators should not perceive avoidance to use discretionary powers as a most common/preferred choice. Further, clear and uniform guidelines should be created in the areas of G-SIB-specific regulation where supervisory discretion is prescribed (and desired). They cannot repeat what is already encompassed by the indicator-based approach. The focus in this field should be on more novel guidelines, such as place in the network, or qualitative aspects, for instance risk profile and business model. A precise and comprehensive character of the corrected guidelines would address the issue of uncertainty and unpredictability of discretionary provisions – both market and the G-SIBs would know what to expect of the supervisors. Consequently, clear instructions to exercise granted discretion could mitigate fear of arbitrariness too.

Third, regulators should have clarity which agency has the last word when it comes to exercising discretion. The joint character of many of these decisions constitutes another deterrent, feeding uncertainty and potentially discouraging them to act at all for fear of inter-agency conflict.

Also, every discretionary decision should be disclosed to the public, together with its justification and reasoning that led to this particular result. Regulators have to reveal how the guidelines were followed and what the individual agencies' stance was in a given case of exercising discretion. Transparency in this context is especially crucial, as it would constitute another step in the process of addressing discretion-related uncertainties, concerns of arbitrariness, and regulatory capture.

Lastly, it would be advisable to create an independent, non-governmental, international agency entrusted with the task of assessing the exercise of supervisory

discretion in relation to G-SIBs. Such an entity would provide additional checks to this framework by evaluating the optimal character of supervisory judgment, not its lawfulness. Public scrutiny in this respect conducted by an independent body would mitigate capture and also further incentivize supervisors to actually take some action, as the existence of such a body would indicate that discretion is there to be utilized.

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Conclusion

Concluding remarks

G-SIBs, or too big to fail banks, constantly constitute a subject of public discourse. Over ten years have passed since the GFC. Many reforms have been introduced, even more recommended, but the too-big-to-fail issue does not seem to have gone away. It starts to become clear that G-SIB-specific regulation may actually never achieve this goal. However, as this book demonstrates, there are some aspects of the G-SIB-oriented legal frameworks in the USA and in the EU that can be relatively easily improved, and these regimes would vastly benefit from such amendments.

All begins with the character of G-SIBs. It seems to have evaded the public debate that G-SIBs are not a monolithic, uniform group. They vary in many aspects, starting with how their path to their current magnitude was shaped. Some chose internal growth, others followed the path of mergers and acquisitions. Some really spread globally, and others prevailingly focused on one foreign market. But the most striking differences can be observed when comparing present features of G-SIBs. They engage in various financial activities, fund themselves differently, choose to focus on different risks. Similarly, aspects linked to their legal corporate structure indicate un-uniform strategies. Differences can even be observed in the context of external factors, such as ownership and which institutional investors essentially control which G-SIB. This individualism and very heterogenic character of G-SIBs as a group is additionally confirmed by the struggle to assign them to an accurate business model and by different perspectives for the future. The combination of their magnitude and their importance to the economy with such diversity should constitute a proper incentive to tailor G-SIB-oriented regulation more individually.

A step in this direction was made after the GFC. The turmoil revealed that the rules in place were inadequately tailored to protect the global financial system. Namely, general provisions treating all banking institutions as if they were the same created an opportunity for some entities to stretch the rules against reason and boost profits. Some G-SIBs exploited the general character or lack of binding provisions and, by stretching the law, engaged in risky, yet legal conduct, which turned out disastrously when it came to the final reckoning. However, not

all G-SIBs did that – as they represent different patterns of behavior in normal times, they also chose different paths during this crisis. Some G-SIBs came out of the crisis pretty stable and were even able to contribute to the rescue missions by acquiring weaker institutions. This disparity is visible in all areas that are so often mentioned as the ones in which G-SIBs are to blame: from size, capital, and leverage to funding patterns, securitization, and contagion. The overly general character of the existing rules (and lack of regulation in many areas) created an environment in which some G-SIBs chose profit over stability, but some did not. Lawmakers and supervisors were taught many lessons by the crisis, but two of them are rarely stated clearly enough. First, G-SIBs choose different modes of operation in crisis circumstances, and not all of them give up on their stability in an instant. Second, G-SIBs' individual character has to be taken into account by the legal provisions applying to them, in order to prevent some of them from choosing to stretch such rules to their benefit (and to prevent the potential demise of the financial system). Regulators arrived at these conclusions, spotted said omissions and flaws in the framework, and initiated a very far-reaching reform of banking law, including the creation of a G-SIB-specific regime.

The currently binding framework for G-SIBs both at the international and regional (USA and EU) level constitutes one of the biggest achievements of the post-crisis reformatory movement. Its most important advantage is relatively simple – it exists. In comparison to the pre-crisis system that did not differentiate between banking entities, it certainly should count as a huge step forward. However, closer examination of specific legal areas reveals flaws in these frameworks.

Starting with the institutional supervisory set-ups in the USA and EU, as supervisors shall play a major role in the shaping of G-SIB-oriented rules, not much has institutionally changed when it comes to supervision in the US, whereas in the EU a bold tendency towards centralization and harmonization of supervision is noticeable. In the G-SIB context, the Federal Reserve Board and FDIC play the first fiddle, along with the ECB and the national authorities of EU countries. Once the supervisory background is established, the analysis moves towards material provisions, starting with the designation framework actually determining which institutions will be subject to these stricter, systemic importance-dependent rules. Unfortunately, the BCBS methodology, and the USA and EU methods that are largely resembling it, fail to reflect the individual character of G-SIBs. The systemic importance indicators are very arbitrary and do not include factors crucial for the characterization of a given banking entity, and consequently, different G-SIBs are treated similarly. Importantly, however, all these frameworks, the BCBS, US and EU ones, encompass an element of supervisory discretion that could mitigate arbitrary outcomes.

Provisions on G-SIB buffer and G-SIB leverage ratio directly rely on the designation and bucket allocation (a way of determining the rank of systemic importance). The higher the bucket, the higher the required buffer or leverage ratio limit. Therefore, they share both the flaw of an overly general approach and the positive aspect of supervisory discretionary powers allowing the agencies to adjust levels

of capital and leverage more individually. In contrast to the capital-related rules, large exposure limits do not differentiate between G-SIBs at all. Rules both in the USA and in the EU set blunt limits and, what is more, this is the only aspect where almost no room for maneuver was left to the regulators.

In turn, the field of resolution framework is very individually oriented. Even though the establishment of crisis management groups and their operations seem to stay in the shadow, other aspects of resolution regime constitute a relevant part of the whole G-SIB-oriented system. Resolution and recovery plans (RRPs), or living wills as they are collectively called in the USA, are drafted on a firm-by-firm basis. Supervisors are equipped with a broad range of discretionary tools in the context of RRP assessment in order to shape operations of G-SIBs adequately and make them resolvable. However, the individual approach of resolution regimes was a bit dimmed by US and EU implementations of the TLAC rule. Originally, according to the FSB, TLAC is supposed to be set on an individual basis, for each G-SIB separately. Both in the USA and in the EU however, it is set at the level suggested by the FSB, the same for all G-SIBs, regardless of their systemic importance or individual resilience. Fortunately, also in this context, supervisory discretion is prescribed and allows the regulators to adjust this arbitrary requirement.

Lastly, G-SIB-oriented Pillar 2 powers constitute an important part of the whole framework. From a *sensu stricto* perspective, G-SIBs are subject to comprehensive stress testing, both in the EU and in the US, in the form of EBA tests and ECB tests, and DFAST and CCAR, respectively. The results of these exercises determine additional capital buffers to be held by an individual institution. In this aspect, G-SIBs are not treated as a monolithic group. However, the scenarios are drafted generally for all of them, not taking into account specific resilience issues of each of these entities. Also stress-testing scenarios and the whole procedures become easier and more transparent to the extent that G-SIBs are increasingly capable of gaming them. Therefore, the Pillar 2 powers in a general sense are even more relevant – they constitute a sum of all the discretionary tools granted to supervisors in the context of all the G-SIB-specific material provisions described in the third chapter.

Thus, the main conclusion from the comprehensive analysis of the G-SIB-specific international and regional regimes is that these rules do not reflect the individual character of given institutions and so could still be subject to the stretching that we witnessed during the GFC. Luckily, most of these material provisions include an emergency exit in the form of supervisory discretion that allows authorities to adjust rules more adequately. In general terms using discretion constitutes a complex issue prone to have far-reaching consequences and deeply rooted in behavioral mechanisms.

Nonetheless, exercising supervisory discretion in the G-SIB context would not only address the issue of insufficiently individualized legal rules on G-SIBs. This tool could additionally enable supervisors to actually break up the banks that they consider a threat to financial stability. They could also address the issue of capital buffers that are too low and leverage ratios that are too low (and differentiate these levels according to individual characteristics). Further, using supervisory discretion would allow regulators to tailor the rules in a way more suitable to

allow G-SIBs to aid the real economy in a non-banking crisis like the coronavirus pandemic. Lastly, discretionary powers could be crucial in the currently ongoing green transformation of the financial system.

However, supervisors at both international and regional (USA and EU) levels do not exercise this granted discretion. They rarely adjust the results of the rather arbitrary systemic importance scores determining a G-SIB's designation and its additional buffer, along with leverage ratio add-on. Further, they avoid tailoring these buffers, even though such freedom is granted to them. Even in the most individually oriented areas of resolvability, stress testing, and resulting Pillar 2 buffers, supervisors reluctantly use their powers to undertake measures taking into account the individual character of a given G-SIB. This inaction of supervisors in the area of adjustments of G-SIB-specific provisions results in the situation that G-SIBs are still bound by overly general legal rules.

What prevents regulators from using their discretionary tools in the G-SIB context? First of all, such powers cause uncertainty. This is especially relevant in the context of financial regulation, as it could have an adverse impact on financial stability, because the markets react negatively to unpredictability. In the case of G-SIB-specific regulation the uncertainty is deepened by the lack of clear and comprehensive guidelines to apply the granted discretion. Also, relying on several supervisory bodies to make such a decision can cause inter-agency coordination problems. Second, general uncertainties lay the foundation for more specific concerns. The industry fears potential arbitrariness of rules established using discretion, whereas supervisors are worried that they could be accused of such arbitrariness. Lastly, broad supervisory discretion creates room for deregulation, and so G-SIBs could see potential for regulatory capture. Inaction of supervisors in this area seems to mitigate such a threat, at least temporarily.

Luckily, most of these problems can be alleviated or even eliminated by means of relatively simple reform. Supervisors should be motivated to exercise discretion and so it is vital to establish an environment that would make these discretionary powers work. Improvements are recommended in five areas. First, functioning of the supervisory agencies should be targeted. Starting at the general level, an increase in funding and the number of staff would be advisable, so that the regulators can do their job without being overwhelmed. Further, an increase in compensation narrowing the gap between salaries in the public sector and in the industry is advisable. Also boosting expertise by means of extensive training programs for supervisory employees is crucial so that the decisions made by supervisors are backed by knowledge and professionalism. Some reputational encouragement would be advisable as well. These changes at supervisory agencies could vastly decrease the threat of regulatory capture or arbitrariness. Second, a system of clear and comprehensive guidelines would mitigate legal uncertainty and prevent authorities from drafting arbitrary rules. These guidelines should be precise and take into account the characteristics of G-SIBs that have so far been omitted in the framework, such as their risk profile, character of their interconnectedness, their corporate structure, and their business model. Furthermore, the coordination problems between supervisory agencies would be mitigated by introducing an ultimate decision maker for each

of the discretionary procedures. Then, the final decision would depend on this one authority, even if it had to consult on it before making it final. In this vein, as with most of the discretionary actions, enhanced transparency of such procedures would additionally mitigate potential for arbitrariness and simultaneously ease the fear of legal uncertainty. Finally, a non-governmental expert body could be established to conduct independent checks of discretionary adjustments. This last solution would serve as an overarching umbrella contributing to the alleviation of all discretion-related obstacles and completing the G-SIB-oriented discretionary powers.

There are two main messages stemming from this book. First, currently binding international and regional G-SIB-oriented frameworks are not adequately tailored to G-SIBs' individual characteristics (Chapter 3), which is absolutely crucial, given how inherently different these institutions are (Chapter 1) and how overly general/non-existent provisions allowed some of them to stretch the law during the GFC (Chapter 2). Luckily, most of the G-SIB-specific rules include a discretionary option to adjust them more individually (Chapter 3). However, the second main result of this research shatters hopes built on this opportunity – even though benefits of exercising discretion could vastly improve the entirety of the G-SIB-oriented regimes, regulators do not use these powers (Chapter 4). Several valid obstacles prevent them from acting in this regard, and relatively simple amendments to the system are vital in order to address them and to allow the authorities to exploit the positive potential of supervisory discretion (Chapter 4).

The solution to the flaws of G-SIB-oriented frameworks that I propose is even more feasible, given the currently evolving role of the financial regulators. Both the ECB and the Fed have shown during the coronavirus pandemic that they are able to be much more active than one would have thought several years ago. Their limitations on dividend payouts, ad-hoc reforms, and waivers of measures imposed on individual G-SIBs proved that individually oriented adjustments are possible and that supervisors are able to conduct them. Naturally, the pandemic constitutes an unprecedented event, but it is indisputable that the role of financial authorities has been irreversibly altered. Such change is in line with the solution that this book recommends.

Perspectives beyond G-SIBs

Looking further, even though it remains to be explored in more depth, it seems that the supervisory discretion could also constitute a key to an enhanced regulation of other systemically important entities, such as insurers or central clearing counterparties, as they share some of the features of the G-SIBs – they are systemically dangerous and too different to be regulated generally. Originally, the idea was to designate them by entity type – as the FSB did with systemically important insurers for several years[1] and is still doing with the central counterparties (CCPs) that

1 The FSB stopped publishing lists of global systemically important insurers in 2017. See FSB, 'Statement on identification of global systemically important insurers', 21 November 2017.

are systemically important in more than one jurisdiction.[2] Currently, the regulatory tide is slowly shifting to a more activities-based approach.[3] Regardless of this change, relevant rules are prevailingly shaped by their supervisors, and so it seems logical that the individualized discretionary tools could also be applied to these non-bank entities. First, they are very diverse and applicable provisions should be tailored to their specific characteristics and risks they are creating.[4] Second, the supervisory authorities responsible for these rules are mostly the same agencies that oversee G-SIBs, so incentivizing them to utilize discretion in the context of G-SIBs could have a positive impact on the regulation of non-bank institutions, too.[5] Therefore, the recommendations and solutions included in this book could be applied to financial institutions beyond the limited group of G-SIBs.

Going one step further, this book could also constitute an inspiration for the regulation of non-financial conglomerates. In the last decade, we have witnessed a rise of two influential corporate groups that conduct their core business outside of the financial world – Big Tech and Big Pharma. For Big Tech, the need for regulation is dire. It is difficult to imagine, however, what kind of general rules would comprehensively address the legal issues that these giants create. Given that they often do not share a common ground in terms of their operations,[6] an individualized regulatory approach seems justified. As for discretionary powers, given the lack of supervisory entities tasked with overseeing such institutions it would be difficult to pinpoint the competences to a given agency. However, should such a supervisor be established, it would be natural to equip them with competences analogue to the ones G-SIB regulators have at their disposal.

In the case of Big Pharma, regulation is in place, but mostly regarding medical aspects or market access and not the systemic risk these companies could contribute to. Recently, however, one could observe a tendency called the financialization of Big Pharma.[7] Big pharmaceutical firms simply switched to a more financialized business model, characterized by high shareholder payouts, high

2 FSB, 'CCPs that are systemically important in more than one jurisdiction (SI>1 CCPs)', September 2020.

3 See FSB, 'Statement'; US Department of the Treasury, 'Financial Stability Oversight Council Issues Final Guidance on Nonbank Designations', 4 December 2019.

4 This reasoning is shared by Danny Busch, Mirik van Rijn, 'Towards single supervision and resolution of systemically important non-bank financial institutions in the European Union', *European Business Organization Law Review,* 2018/2.

5 For instance in the EU several systemically important CCPs are based in Germany and the Netherlands. See ESMA, 'List of Central Counterparties authorised to offer services and activities in the Union', 4 January 2021. Consequently, they are supervised by Bafin and De Nederlandsche Bank respectively, two agencies responsible for Deutsche Bank's and ING's prudential conduct and supervision of insurers. Similarly in the US CCPs and insurers are supervised by the SEC and CFTC – agencies controlling the investment activities of US G-SIBs.

6 For instance Facebook, Google, and Amazon conduct business in different areas of technology and overlap of their operations is not easily noticeable.

7 Rodrigo Fernandez, Tobias Klinge, 'The financialisation of Big Pharma', SOMO Centre for Research on Multinational Corporations, April 2020.

debt financing, and relatively low investment in research and development (R&D). Between 2000 and 2018 payouts to shareholders increased by almost 400 per cent. Simultaneously, investments in R&D have not increased.[8] Big Pharma took on more and more debt, but mostly to make payouts and acquire smaller companies together with their intellectual property instead of developing their own technology.[9] In light of this new financialized Big Pharma model, supervisory discretion in the macroprudential context could constitute a useful regulatory tool. As these companies become increasingly similar to G-SIBs, solutions applicable to megabanks seem adequate for them, too.

Perspectives beyond the USA and EU

Even though the majority of G-SIBs stem from the two jurisdictions described in this book, namely from the USA and EU, these are not the only legal systems in which such institutions are incorporated.[10] China is in third place when it comes to the number of megabanks based there, with four G-SIBs.[11] Three big banks are based in Japan and in the UK, and two come from Canada and from Switzerland. All of these countries have shown substantial commitment to the implementation of the BCBS/FSB G-SIB-specific standards.[12] China is lagging behind the most, as they did not introduce the TLAC rules.[13] However, generally all of these legal systems encompass a G-SIB-oriented set of provisions, allowing regulators to designate such entities, impose higher capital and leverage requirements, as well as subject them to higher supervisory scrutiny.

Naturally, the potential for supervisory discretion in these countries should be analyzed in depth, but two main conditions relevant for this solution to be applicable in G-SIB home jurisdictions other than the USA and EU are fulfilled. First, these banks also differ vastly from each other and should not be treated as identical. Toronto Dominion and the Royal Bank of Canada create different risks and choose different international destinations.[14] The Mitsubishi UFJ Financial Group constitutes part of the even bigger Mitsubishi Group, which is unprecedented in the context of G-SIBs. Chinese G-SIBs have for political reasons focused mainly on the domestic market and only recently started to engage abroad,[15] mostly in emerging market and developing economies.[16] As for British G-SIBs, Standard

8 Ibid, p. 5.
9 Ibid, p. 6.
10 FSB, '2021 list of global systemically important banks (G-SIBs)', 23 November 2021.
11 Ibid.
12 BCBS, 'Progress report on adoption of the Basel regulatory framework', October 2021, pp. 12–15, 24–25, 42–43, 46–49.
13 Ibid, pp. 14–15.
14 TD is active mostly in domestic Canada and in the USA, whereas RBC's operations are more spread, including many services available worldwide.
15 *The Economist*, 'As China Goes gGobal, Its Banks Are Coming Out, Too', 9 May 2020.
16 Eugenio Cerutti, Catherine Casanova, Swapan-Kumar Pradhan, 'Banking Across Borders: Are Chinese Banks Different?', *BIS Working Paper* 892, 14 October 2020.

Chartered, even though it is incorporated in the UK, does not provide retail services there, focusing prevailingly on Asia, Africa, and the Middle East. In contrast, Barclays is very active in its domestic market.

Second, in each of these jurisdictions there are regulators that could exercise granted discretion, as they are supposed to subject G-SIBs to higher supervisory scrutiny. For instance in Canada it is the Office of the Superintendent of Financial Institutions (OSFI), Japan has the Financial Services Authority, and the Chinese G-SIBs are supervised by the China Banking and Insurance Regulatory Commission (CBIRC) and the Chinese central bank. Additionally, in contrast to the USA and EU, only a few G-SIBs are incorporated in these other jurisdictions, which could facilitate the process of examining and adjusting the rules accordingly. Logically, these discretionary tools could be most useful in the countries with legal systems relatively similar to the US and EU ones, such as Switzerland, the UK, or even Japan. In China it could be more problematic. Given that Chinese regulators follow a rules-based approach, regulations binding supervisors are highly prescriptive, even when they encompass discretionary competences. Regardless of the differences between these legal systems, they need to face the threats that overly general regulation of G-SIBs poses to the stability of the financial system. In any case, bearing in mind the challenges that loom over the world of finance, there is no time to lose.

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