Central banks, systemic risk and financial sector structural reform

Saule T Omarova

[*forthcoming in ROSA LASTRA AND PETER CONTI-BROWN (EDS.), RESEARCH HANDBOOK ON CENTRAL BANKING (2018)*]

I. INTRODUCTION

In the aftermath of the 2008 financial crisis, safeguarding financial stability is increasingly recognized as an integral part of central banks' mandate, alongside their traditional task of ensuring monetary stability. Effective prevention of systemic risk—a capacious category that encompasses a wide range of potentially significant threats to financial stability—is one of the most important and challenging issues confronting central banks in the post-crisis era (Caruana, 2010). This renewed attention to systemic risk and financial stability has prompted an important shift from the predominantly microprudential pre-crisis paradigm of financial regulation and supervision, which focused on the safety and soundness of individual firms, to an explicitly macroprudential approach that targets system-wide effects of risk-taking by individual market actors (BIS, 2012; IMF, 2012; BoE, 2011). Central banks are at the very core of this process, actively developing new macroprudential policies and supervisory tools, while at the same time repurposing some of the old and familiar ones (Hockett, 2015). This evolving macroprudential regime operates through enhanced capital standards, liquidity requirements, regular 'stress test' exercises, and other methods designed to reduce systemic risk (Yellen, 2015).

Reforming the institutional structure of the financial industry, or structural reform, is a distinct method of addressing systemic risk by limiting the range of permissible transactions or organizational affiliations among different types of financial firms. Structural reforms seek to alter the fundamental pattern of interconnectedness in the financial system, in order to block certain channels through which risk is transmitted and shocks are amplified (Caruana, 2010). In that sense, reforms to financial industry structure do not merely supplement macroprudential measures (Fischer, 2016) but operate as a more blunt, deeper—indeed, foundational—form of macroprudential regulation.

DRAFT

This chapter focuses on financial sector structural reform as an important dimension of central banks' post-crisis systemic risk prevention agenda. Unlike macroprudential regulation in the more familiar sense, outright structural reform of the financial industry has not been explicitly included in the agenda for international regulatory reform under the aegis of the G20. Nevertheless, a number of countries—including the US, UK, Germany, France and Belgium—have initiated their own reforms aimed at restructuring their financial sectors. A major industry restructuring effort is also being pursued at the European Union ('EU') level. These reforms seek to establish separate regulatory regimes for different categories of financial activities and institutions, but often differ in how they draw those all-important categorical lines. Meanwhile, various alternative reform proposals call for more radical structural reforms, ranging from modern variations on the Glass-Steagall era separation between commercial and investment banks to even more restrictive forms of 'narrow' banking.

It is still too early to tell whether, and to what extent, any of the current US and European structural reforms will succeed in practice. It is also difficult to judge which specific structural reform plan offers the most effective conceptual blueprint for minimizing and controlling systemic risk. This is both a reflection of the inherent complexity of the task at hand and a product of the familiar political-economy dynamic surrounding high-stake regulatory reforms. The latter explains, for example, why financial industry groups, fearing potential loss of profits as a result of proposed structural divisions, argue vociferously against reform. To make things even more complicated, issues of industry structure are often lumped together with other, closely related but conceptually distinct, regulatory concerns, such as breaking up 'too big to fail' ('TBTF') banks or finding an efficient method of resolving them (Kashkari, 2016; Federal Reserve Bank of Minneapolis, 2016). Finally, with reform efforts still in a state of flux, it is not yet clear what role, if any, the relevant jurisdictions' central banks should play in determining the direction, speed, and potential outcomes of structural reforms currently under way.

This chapter does not claim to answer these questions. Far more modestly, it begins defining and exploring the broader analytical and policy terrain on which such answers may be found. Part II identifies and describes three principal models that form a continuum of potentially available financial sector structural reform choices. Parts III and IV apply this conceptual framework to analysis of post-crisis structural reforms in the UK, EU, and US. Part V

DRAFT

argues that issues of financial industry structure are deeply embedded in central banks' regulatory and policy agenda and, in light of this connection, discusses potential implications of current structural reforms for central banks' post-crisis financial stability mandate.

II. DEFINING THE CONTINUUM OF CHOICES: THREE STRUCTURAL MODELS

In principle, there are three models that represent conceptually distinct choices along the industry structure continuum: (1) the 'universal bank' model; (2) the 'holding company' model; and (3) the 'strict separation' model. In practice, it is difficult to find any of these three models in its pure form, as most countries' approaches to their financial industry structure tend to combine elements of different models. Nevertheless, identifying some of the key features of these models provides a helpful context for assessing current structural reform efforts.

1. The 'Universal Bank' Model

Under the 'universal bank' model, the predominant form of organization for continental European banks, depository institutions are allowed to engage in a wide variety of business activities beyond traditional banking. Universal banks freely operate across sectoral boundaries as they take deposits, make loans, trade and deal in securities, and underwrite insurance policies (Benston, 1994). In some countries—most notably, Germany—universal banks are also allowed to make controlling equity investments in non-financial companies, often their lending clients (Alexander, 2015). These various activities can be conducted either by a single entity or by affiliated entities within a conglomerate structure (Dierick, 2004; Benston, 1994). In contrast to the US bank holding company model, however, universal banks are generally free to choose their precise organizational structure.

The arguments in favor of universal banking stress the fact that it maximizes individual banks' ability to diversify their balance sheets and to achieve greater economies of scope and scale, which potentially enhances their safety and soundness. The key risks associated with the model include the heightened danger of risk contagion that could disrupt provision of core banking services, increased possibilities for regulatory arbitrage and obfuscation of risk allocation within the group structure, and greater potential for conflicts of interests and abuse of

DRAFT

concentrated economic power by financial conglomerates that are ‘too big to fail’ (Dierick, 2004: 14–16).

From the mid-1980s until the onset of the crisis in 2008, many European countries pursued aggressive deregulatory policies in their financial services sectors that encouraged further diversification of European financial institutions’ activities. By the early 2000s, the European financial services industry became highly concentrated, and a handful of its largest financial conglomerates significantly increased the size of their balance sheets (ECB, 2005; Dierick, 2004). The pre-crisis list of the largest bancassurance groups in Europe included Deutsche Bank, BNP Paribas, HSBC, Lloyds, Royal Bank of Scotland, ABN Amro, Fortis, Dexia, and many other household names (Dierick, 2004: 9).

This list alone should explain why the trajectory of universal banking groups’ growth, and the changes in their individual or cumulative systemic risk footprint, are matters of utmost concern to European central banks and financial regulators, both at the national level and at the EU level. The fundamental regulatory challenge in this respect is the inherent difficulty of isolating and targeting specific sources of excess leverage and risk accumulation that affect micro- and macro- stability of core banking products and services, so seamlessly incorporated in universal banks’ complex business strategies. As the 2008 financial crisis demonstrated, failure to fulfill this difficult task makes ex post bailouts of financial conglomerates an unavoidable political reality (Domanski et al, 2014).

2. The ‘Holding Company’ Model

Under the ‘holding company’ model, followed in the US, banking institutions may operate across sectoral lines only subject to statutory limitations and conditions. Thus, US depository institutions are generally precluded from conducting non-banking activities, either directly or through a subsidiary.¹ Since the 1980s, federal regulators have gradually expanded bank-permissible activities to include, among other things, trading and dealing in a wide range of derivatives (Omarova, 2009). Yet, despite this regulatory loosening of the statutory prohibitions, US banks are not permitted to engage in full-service investment banking or insurance underwriting. Any financial activities outside traditional banking may be conducted only by

¹ National Bank Act of 1863, 12 U.S.C. 24 (Seventh).

DRAFT

banks' corporate parents, or 'bank holding companies' ('BHCs'), which are subject to group-wide regulation and supervision by the Board of Governors of the Federal Reserve System (the 'Federal Reserve') under the Bank Holding Company Act of 1956 (the 'BHC Act').² The BHC Act limits the scope of financial activities permissible for BHCs mainly to activities 'closely related' to banking, which include activities like leasing and lending but exclude securities or insurance underwriting.³

These and other activities 'financial in nature' or 'complementary' to finance may be conducted only by BHCs that qualify for a special status of 'financial holding companies' ('FHCs') by satisfying, among other things, certain supervisory criteria for managerial strength and capital adequacy. FHCs can engage in investment banking, merchant banking, insurance business, and other authorized activities directly or through their non-depository subsidiaries.⁴ Non-financial activities and investments, such as trading in physical commodities, are generally impermissible even for FHCs, unless specifically authorized under the statute (Omarova, 2013).

As a practical matter, large US FHCs' business activities span across sectoral borders much in the same manner as those of European universal banks. Nevertheless, explicit legal and regulatory limitations on banking institutions' ability to operate across sectoral lines fundamentally distinguishes the US 'holding company' structure from universal banking. This internal tension between the strict tenets of the holding company model, on the one hand, and the reality of nearly universal cross-sectoral conglomeration, on the other, is one of the fundamental factors that complicate the Federal Reserve's task as a systemic risk regulator and the formal 'umbrella' regulator of US BHCs. Much like its European counterparts, the Federal Reserve faces the challenge of untangling the complex patterns of economic risk transfer within and among de facto fully diversified and integrated financial conglomerates, while also managing the legal and regulatory organizational and transactional 'walls' between banking and non-banking FHC affiliates.⁵

² Bank Holding Company Act of 1956, 12 U.S.C. § 1841 *et seq.*

³ 12 U.S.C. § 1843(c)(8).

⁴ 12 U.S.C. § 1843(k).

⁵ Regulation of credit extension and certain other transactions between banks and their affiliates within a holding company structure is an important part of the Federal Reserve's mandate under Sections 23A and 23B of the Federal Reserve Act. 12 U.S.C. §§ 371c; 371c-1. However, guarding this statutory wall is a difficult task that may become outright impossible in times of crisis (Omarova, 2011).

3. The ‘Strict Separation’ Model

The ‘strict separation’ model represents the most restrictive point on the continuum of structural choices. It prohibits depository institutions from offering certain types of financial products and services or, more broadly, entering into certain types of financial transactions. Perhaps the best-known historical example of strict separation in action was the prohibition on affiliation between commercial and investment banks under the Glass-Steagall Act of 1933.⁶ Enacted in response to the trauma of the Great Depression, that law mandated complete economic, legal, and organizational separation of deposit-taking from securities trading and underwriting.

Beginning in the 1980s, a variety of factors—technological and financial innovation, cross-sectoral competitive pressures, regulatory arbitrage and regulatory competition—led to the gradual erosion of the Glass-Steagall regime (Wilmarth, 2015). In 1999, Congress enacted the Gramm-Leach-Bliley Act (the ‘GLB Act’) that formally repealed the specific Glass-Steagall provisions prohibiting organizational affiliation between banks and investment banks.⁷ After nearly 70 years, the US system of strict structural separation between banking and non-banking financial services gave way to the more permissive FHC structure.

The sobering experience of the late 2000s, however, reignited debates about the desirability of hard-wired intra-industry structural boundaries, in order to protect the solvency and stable operations of financial entities and activities clearly imbued with public interest. Thus, current proposals for so-called ‘narrow’ or ‘safe’ banking are direct attempts to re-envision the old ‘strict separation’ model for the post-crisis era (Kotlikoff, 2011; Wilmarth, 2012; Levitin, 2016). The principal common characteristic of these proposals is their categorical prohibition on organizational combination, either within a single entity or a holding company, of deposit-taking and provision of basic payment services with other financial services and activities (including lending). In that sense, the narrow banking proposals seek to impose even more stringent activity restrictions on deposit-taking institutions than restrictions that were in place under the Glass-Steagall Act.

⁶ Banking Act of 1933 (Glass-Steagall Act), Pub. L. No. 73-66, 48 Stat. 162 (codified as amended in scattered sections of 12 U.S.C.).

⁷ Financial Services Modernization Act of 1999 (Gramm-Leach-Bliley Act), Pub. L. No. 106-102, 113 Stat. 1338 (codified in scattered sections of 12 and 15 U.S.C.).

To the extent strict separation and universal banking constitute opposite ends of the structural continuum, the relative benefits and shortcomings of the former are largely the inverse of those associated with the latter. A successfully implemented model of strict separation can enhance systemic stability by protecting banks from contagion risks, by simplifying their internal organization and making them more transparent and manageable, by reducing potential for conflicts of interest and abuse of concentrated economic power, and by eliminating the need for bailing out TBTF institutions. On the other hand, the model’s critics argue—often by interpreting the experience of the Glass-Steagall era—that strict structural separation is bound to stifle financial innovation, prevent economically efficient transactions, and hurt the safety and soundness of the banking system by forcing risky activities into unregulated or less regulated sectors (Guynn and Kenadjian, 2015; Huertas, 2015; Benston, 1994).

Experience shows, however, that the less restrictive structural models discussed above do not necessarily perform better, especially in terms of safeguarding systemic stability. Not surprisingly, in the wake of the latest financial crisis, both US and European authorities have embarked on the path of bank structural reform. Examining how and why these jurisdictions are moving along the continuum of structural choices helps to get a better sense of the role that central banks are, and should be, playing in that process.

III. FROM ‘UNIVERSAL BANK’ TO ‘HOLDING COMPANY’: BANK STRUCTURAL REFORMS IN EUROPE

In the pre-crisis boom years, the European banking sector experienced unprecedented consolidation and growth, both in absolute and relative terms.⁸ After a painful wave of near-failures and public bailouts of some of Europe’s largest universal banks in 2008–09, several European countries—including the UK, Germany, France and Belgium—sought to address this newly salient TBTF problem through structural reform. The European Commission (‘EC’) initiated a parallel EU-level effort to address systemic issues posed by the risky trading activities and opaque structure of the large universal banks that dominate the region’s financial sector. A

⁸ As of 2011, the EU banking sector assets constituted nearly 350 percent of the region’s GDP, compared to 78 percent in the US. *See* Quintana et al (2014).

brief overview of the reform efforts in the UK and EU shows that European policy-makers are in the process of orchestrating a major conceptual shift along the continuum of structural choices, discussed above, from the pure ‘universal bank’ model to a more restrictive ‘holding company’ model.

1. United Kingdom: Retail Ring-Fencing

The traumatic events of September 2008 nearly brought down some of the largest, globally active British banks (FSA, 2009; Alexander, 2015). Partly in response to the controversial bailouts of the Royal Bank of Scotland and Lloyds, Chancellor Osborne appointed the Independent Commission on Banking (‘ICB’), or the Vickers Commission, tasked with developing recommendations on reforming the structure of the British banking industry. In September 2011, the ICB published its final report that called for ‘ring-fencing’ of retail bank operations from the riskier wholesale or investment activities pursued by banking conglomerates (ICB, 2011). With some modifications, this report formed the basis for the Financial Services (Banking Reform) Act 2013.⁹ The Bank of England’s Prudential Regulation Authority (‘PRA’) is required to implement the new ring-fencing regime, which is set to come in full force in 2019.

Under the Banking Reform Act, as supplemented by secondary legislation adopted by HM Treasury in 2014, all UK banks with retail and small-business deposits exceeding £25 billion are required to conduct all of their retail deposit-taking, overdrafts and associated payments activities—i.e., ‘core activities’—in separately organized and capitalized subsidiaries, known as ‘ring-fenced bodies’.¹⁰ Only ring-fenced bodies—and banks with retail deposits below the £25-billion threshold, which are exempt from the ring-fencing requirement—are permitted to conduct such core activities.

Ring-fenced banks are prohibited from conducting ‘excluded’ activities, such as ‘dealing in investments as principal’, within or outside the UK.¹¹ This broadly stated ban on proprietary trading by ring-fenced entities, in effect, erects a structural barrier between retail deposit-taking and investment banking activities. Secondary legislation has clarified the scope of ‘excluded activities’ to include, for example, dealing in physical commodities and derivatives, while also

⁹ Financial Services (Banking Reform) Act 2013.

¹⁰ Financial Services and Markets Act 2000 (Ring-Fenced Bodies and Core Activities) Order 2014, SI 2014/1960.

¹¹ Banking Reform Act, Sec. 142D.

carving out specific exemptions from the exclusion.¹² Pursuant to these exemptions, ring-fenced banks can conduct proprietary trading for the purposes of managing their own liquidity or hedging their own risks, such as interest rate or exchange rate risks, arising out of their lending and other permissible activities. The legislation also permits these entities to enter into simple derivatives transactions with their clients, such as exchange rate or currency swaps, subject to certain limits on the size and risk level of such derivatives activities.¹³

In addition to delineating the perimeter of ‘excluded’ activities, the legislation imposes ‘prohibitions’ on ring-fenced banks establishing branches or subsidiaries outside of the European Economic Area (‘EEA’), as well as on their transactions with certain types of counterparties.¹⁴ Perhaps most notably, the legislation prohibits these entities from incurring economic exposure to financial institutions located outside of the ring-fence: investment banks, hedge funds and other entities that tend to be highly leveraged and rely on short-term wholesale funding. Specific exemptions, however, allow ring-fenced banks to transact with other financial institutions in the course of hedging their own risks, issuing covered bonds or securitizing loans, or financing trade.

These prohibitions aim to limit the exposure of public utility-like ring-fenced banks to externally generated risks and thus minimize the danger of cross-sectoral and cross-border contagion (Alexander, 2015). This reflects the broader objectives behind the UK’s new ring-fencing scheme: (1) to ensure stable, uninterrupted provision of vital retail banking services by shielding them from external financial shocks; and (2) to make large banking institutions easier to resolve in the event of a failure (ICB, 2011). In other words, the focus of the reform is on enhancing both the *resilience* and the *resolvability* of the systemically important retail banking sector (PRA, 2014:7).

To achieve these lofty goals, the ring-fence around the relevant entities must be sufficiently robust to withstand the banking groups’ attempts to get around it. Pursuant to the Banking Reform Act, UK regulators have been developing rules to ensure that each ring-fenced bank is legally, economically and organizationally independent—and easily separable—from the rest of the group. Each such bank must be established as a legally separate and independently

¹² Financial Services and Markets Act 2000 (Excluded Activities and Prohibitions) Order 2014, SI 2014/2080.

¹³ *Ibid.*

¹⁴ *Ibid.*

governed entity within the larger corporate group (PRA, 2015). It also has to comply with applicable capital and liquidity requirements on a stand-alone basis and manage its exposure to affiliates on an arm's length basis.

It is too early to judge the practical impact of these measures. An important unknown in this respect is the ability of the PRA, as the prudential regulator in charge of implementing the new regime, to resist the industry's efforts to have the rules relaxed, perhaps one little bit at a time.¹⁵ Assessing potential efficacy of this evolving regime is especially difficult in light of the parallel process of structural reform at the EU level.

2. European Union: (Potential) Subsidiarization

In October 2012, the High-Level Expert Group on structural reform in the European financial sector, established by EU Commissioner Michel Barnier, issued a report—widely known as the Liikanen Report—containing recommendations on reforming the structure of European banks. In parallel to the Vickers Commission's recommendations, the report generally advocated the 'ring-fencing' solution to the problem of restructuring and simplifying large, diversified EU banking conglomerates. In contrast to the Vickers approach, however, the Liikanen Report recommended mandatory ring-fencing of all high-risk trading activities for banks with trading assets exceeding a certain threshold. Under this proposal, all of such banks' proprietary and market-making activities would have to be conducted in a separately organized and capitalized 'trading entity', while deposit-taking and other traditional banking activities could be carried out anywhere in the corporate group. The ring-fenced trading entity would not be allowed to fund itself with deposits or provide retail banking services (Liikanen Report, 2012).

The Liikanen Report formed the basis for the proposed regulation, unveiled by the European Commission's ('EC') in January 2014.¹⁶ In some important respects, however, the proposed regulation departs from the original Liikanen Report's recommendation. Thus, the EC opted against mandatory ring-fencing of banks' trading activities in favor of a general

¹⁵ See, e.g., Omarova, 2009 and Omarova, 2011.

¹⁶ Commission Proposal of 29 January 2014 for a Regulation of the European Parliament and of the Council Regulation of the European Parliament and of the Council on structural measures improving the resilience of EU credit institutions. CO/2014/043 final – 2014/0020 (COD).

prohibition on proprietary trading in financial instruments and commodities, combined with potential supervisor-imposed separation of high-risk trading activities within individual groups.¹⁷

The proposed regulation imposes a ban on proprietary trading by the largest EU ‘credit institutions’ (including deposit-taking banks and their subsidiaries and affiliates) that are either (1) designated as ‘global systemically important banks’ (‘G-SIBs’), or (2) have assets and trading activities in excess of a certain size threshold.¹⁸ To prevent banks from circumventing the ban, the draft regulation prohibits them from investing in and sponsoring hedge funds.¹⁹ Despite its seemingly harsh tone, however, the proposed ban is very narrowly drawn, as the definition of ‘proprietary trading’ is limited to position-taking entirely unconnected to any client activity or hedging the bank’s own risk and carried on by the bank’s formally designated proprietary trading units.²⁰ This narrow reach of the ban was seen as ‘allay[ing] many concerns’ in the industry (Freshfields, 2014:1).

The draft regulation allows deposit-taking entities, or ‘core credit institutions’, within large EU banking groups to continue conducting a wide range of non-proprietary trading but makes it expressly subject to the discretion of the competent supervisory authority.²¹ The proposal requires supervisors to conduct regular reviews of trading activities of individual groups that include a core bank, with a view to determining whether such activities—especially market-making, investing in and sponsoring risky securitizations, and derivative trading—should be ring-fenced in a separately organized and capitalized trading subsidiary.²² The proposed regulation outlines certain general metrics for supervisory assessments, which are expected to be further developed into technical standards by the European Banking Authority (‘EBA’) and then adopted by the Commission.²³ If, on the basis of these standards, the supervisor finds that an individual group’s trading activities exceed certain limits and pose risk to the EU’s financial stability, such activities will have to be separated.²⁴ The supervisor may require ring-fencing—or

¹⁷ Commission Proposal, Explanatory Memorandum Sec. 3.3.1.

¹⁸ *Ibid*, Art 3(1)(a); 6(1)(a).

¹⁹ *Ibid*, Art 6(1)(b).

²⁰ *Ibid*, Art 5(4).

²¹ *Ibid*, Arts 8–10.

²² *Ibid*, Art 9(1).

²³ *Ibid*, Art 9(2)–9(4).

²⁴ *Ibid*, Art 10(1).

‘subsidiarization’—even if the relevant limits are not exceeded but potential risk to financial stability renders such a measure prudent.²⁵

The EC’s proposed regulation was widely seen as a significantly weakened version of the original Liikanen Report, insofar as it moved away from the idea of mandatory subsidiarization (Alexander, 2015; Freshfields, 2014). Given the highly political and complex nature of EU decision-making, it is difficult to discern the ultimate shape the European structural regulation of financial conglomerates will take (Gordon and Ringe, 2015). For present purposes, however, the important takeaway concerns the general trajectory of post-crisis structural reforms in Europe, from its traditionally permissive ‘universal bank’ model to the intermediate ‘holding company’ model traditionally associated with the US.

In principle, this movement along the structural continuum reflects European policy-makers’ desire to reduce the riskiness and complexity of the largest European banks’ activities, to make them easier to resolve, and to minimize the likelihood of taxpayer-funded bailouts in the future. Ring-fencing and subsidiarization are seen as the means to achieve these goals, while also avoiding potential economic and political costs of a strict structural separation. Yet, as the US experience shows, the holding company model poses its own challenges and may, in many respects, significantly complicate the task of regulators and supervisors in charge of policing intra-group transfers of risk and subsidy (Omarova, 2013; Omarova, 2011). The pre-crisis failure of US bank regulators to fulfill that task effectively has prompted post-crisis efforts at structural reform of the US financial industry.

IV. FROM HOLDING COMPANY (BACK) TO STRICT SEPARATION? STRUCTURAL REFORMS IN THE US

The principal piece of post-crisis structural reform in the US is the so-called ‘Volcker Rule,’ named after the former Chairman of the Federal Reserve System Paul Volcker. Enacted as part of the Dodd-Frank Act in 2010, this controversial regime introduced certain limited-scope strict prohibitions on FHCs’ permissible activities, while preserving the overall holding company

²⁵ *Ibid*, Art 10(2).

structure that has existed in the US since 1956.²⁶ However, the Rule's complex architecture of categorical prohibitions, exclusions, exemptions and exemption-limiting 'backstops' raises serious questions about its implementation and efficacy.²⁷ As alternative proposals for a more radical move toward a strict separation model continue to circulate in political and academic circles, the future trajectory of structural reform in the US remains uncertain.

1. The Volcker Rule

In the Dodd-Frank Act, Congress amended the BHC Act by adding a new Section 13 that imposes a general prohibition on all 'banking entities'—a broad term referring to federally-insured banks and all of their affiliates within the BHC/FHC structure—from (1) conducting short-term 'proprietary trading' in financial instruments (including securities and derivatives), and (2) having 'ownership interests' or sponsoring certain 'covered funds' (including, principally, hedge funds and private equity funds).²⁸ The original impetus behind this provision was to erect a strict structural barrier between publicly subsidized banks that offer systemically critical public utility-type products and services, on the one hand, and non-depository financial institutions that trade and deal in risky financial assets, on the other (Merkeley and Levin, 2011). In that sense, the Volcker Rule was initially conceived as a shift toward the 'strict separation' model. As enacted, however, the Rule's transformative aspirations are significantly diluted by many exclusions and exemptions from its prohibitions.²⁹

In December 2013, the Federal Reserve and other federal bank regulators issued a joint final rule defining the scope of the statutory prohibitions and exemptions.³⁰ The explanatory preamble to the rule ran for nearly 900 pages in the original release, which reflects the dazzling complexity of the statutory scheme. As implemented by the regulators, the Volcker Rule attempts to draw a myriad of fine lines between transactions and activities that, despite being economically similar, are either (1) prohibited, (2) categorically *excluded* from the prohibitions, or (3) specifically *exempt* from them. This elaborate line-drawing, in effect, translates the

²⁶ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010) (codified in scattered sections of 12 U.S.C.).

²⁷ For a sample of recent contributions to the debate on the viability and potential consequences of the Volcker Rule, *see, eg*, Massari and Rosenberg, 2015; Gynn and Kenadjian, 2015; Dombalagian, 2013; Chow and Surti, 2011.

²⁸ 12 U.S.C. § 1851 (2012).

²⁹ *See*, 12 U.S.C. § 1851(d).

³⁰ *See*, 12 C.F.R. Parts 44 (OCC), 248 (Federal Reserve), 351 (FDIC) and 17 C.F.R. Part 255 (SEC).

DRAFT

statute's harshly prohibitive main operative provision into a far more porous and fluid regime, whose applicability and degree of intrusiveness depend on facts and circumstances surrounding transactions at hand.

The Rule defines proprietary trading broadly, as 'engaging as principal for the trading account of the banking entity in any purchase or sale of one or more financial instruments.'³¹ The scope of prohibited proprietary trading is tied to three different tests, depending on (1) the intended purpose of the transaction (i.e., whether a transaction is entered into for the purpose of a short-term resale, gain from short-term price movements, or hedging such short-term transactions), (2) its classification under the market risk capital rules, and (3) the status of the entity (i.e., whether the banking entity is a registered swaps dealer).³² It then creates a series of definitional *exclusions* from the prohibition. For example, 'spot' trades in foreign exchange and physical commodities are excluded from the definition of 'financial instrument'.³³ Similarly, securities lending and repurchase transactions are excluded from the definition of 'proprietary trading'.³⁴

Furthermore, the Rule sets forth conditions under which non-excluded proprietary trades may be nevertheless *exempt* from the general prohibition. Among the most significant statutory categories of such 'permitted activities' are market-making and hedging. The Rule allows banking entities to conduct proprietary trading as part of their bona fide market-making if, among other things, the volume, types and risks of financial instruments being bought and sold are designed not to exceed 'reasonably expected customer demand', based on the analysis of historical customer demand, current inventory, and relevant market trends.³⁵ Similarly, a banking entity is allowed to conduct proprietary trading for bona fide hedging purposes if, among other things, such activity significantly mitigates 'specific, identifiable risks' related to the entity's assets and, at its inception, does not create any significant new risk that is not hedged simultaneously.³⁶ With respect to both market-making and hedging activities, the Rule also requires that (1) the banking entity establish a dedicated internal compliance program that meets

³¹ 12 C.F.R. § 248.3(a).

³² 12 C.F.R. § 248.3(b).

³³ 12 C.F.R. § 248.3(c).

³⁴ 12 C.F.R. § 248.3(d).

³⁵ 12 C.F.R. § 248.4.

³⁶ 12 C.F.R. § 248.5.

specified regulatory requirements; and (2) the relevant staff compensation arrangements not be designed to encourage prohibited proprietary trading.³⁷

The Volcker Rule regime governing bank entities' ownership and sponsoring of 'covered funds' contains a similarly complex system of exclusions and exemptions.³⁸ Certain loan securitizations, joint ventures and non-US funds are explicitly excluded from the definition of a 'covered fund'.³⁹ Acquiring an ownership interest in a covered fund solely as an agent and on behalf of a customer is also excluded from the general prohibition.⁴⁰ The Rule specifically exempts from the prohibition activities in connection with 'organizing and offering' a covered fund, subject to a long list of conditions and quantitative limitations on permissible investments.⁴¹ One of the most significant provisions in this respect, dubbed 'Super 23A' in reference to Section 23A of the Federal Reserve Act, prohibits banking entities from extending credit to covered funds they organize, sponsor or advise.⁴²

All permitted activities under the Volcker Rule are subject to 'prudential backstop' provisions that override the exemptions for activities involving material conflicts of interest, exposing the banking entity to high-risk assets or strategies, or posing a threat either to the banking entity's safety and soundness or to the US financial stability.⁴³ Each regulator responsible for administering the Volcker Rule, including the Federal Reserve, has an express authority to terminate any activity that violates or enables evasion of the Rule.⁴⁴ It is not clear, however, how assertively or consistently these multiple agencies would be willing to exercise this authority, especially in situations calling for the application of prudential backstops or anti-evasion provisions. The inherent difficulty of making numerous requisite qualitative determinations, many of which turn on the notoriously elusive proof of intent, renders the administration and enforcement of—as well as compliance with—the new regime particularly challenging (Massari and Rosenberg, 2015; Dombalagian, 2013; Chow and Surti, 2011).

³⁷ 12 C.F.R. §§ 248.4; 248.5.

³⁸ 12 C.F.R. § 248.10 (d)(9).

³⁹ 12 C.F.R. § 248.10 (c).

⁴⁰ 12 C.F.R. § 248.10 (a).

⁴¹ 12 C.F.R. § 248.11.

⁴² 12 C.F.R. § 248.14(a)(1).

⁴³ 12 C.F.R. §§ 248.7; 248.15.

⁴⁴ 12 U.S.C. § 1851(e)(2).

Concerns about the regime's complexity and potential impracticability are commonly voiced both by those who demand more stringent regulation of big banks and by those who oppose it. Some critics see the Volcker Rule as a hollow shell of the original idea, impotent and full of loopholes (Eisinger, 2012; Sheppard, 2014). Others attack it as a heavy-handed attempt to over-regulate and restore the outdated divisions of the Glass-Steagall era (Davidoff, 2012). As usual, the reality fits somewhere between these criticisms. It would be inaccurate to interpret the Volcker Rule as a reinstated Glass-Steagall regime of strict functional separation (Dombalagian, 2013). On the one hand, the general scope of activity prohibitions under the Volcker Rule is broader than the scope of the Glass-Steagall Act's prohibition on affiliation between commercial and investment banks. On the other hand, the intricate web of capacious exclusions and exemptions—the 'doors' in the wall between traditional banking and proprietary trading—significantly weaken the Volcker Rule as a structural separation device. At best, the Rule represents an attempt to find the middle ground between the currently permissive US FHC regime and the strict sectoral division of the Glass-Steagall era.

Yet, it may not be possible to find a workable 'middle ground' of this kind. It may very well be that an effective shift along the continuum of structural choices from the 'holding company' model to 'strict separation' requires an explicit and unreserved 'push-out' of certain activities beyond banking groups' organizational boundaries. This possibility is the focus of the post-crisis—and post-Dodd-Frank—debate on the desirability and practicability of more radical structural reforms in the US.

2. Potential Alternatives: Proposals for Strict Structural Separation

In an interesting historical parallel to the Great Depression era, in the wake of the latest crisis there have been several attempts to legislate structural separations between depository institutions and other financial market intermediaries. Thus, in July 2013, a by-partisan group of US Senators, led by Elizabeth Warren and John McCain, introduced a bill aptly entitled the '21st Century Glass-Steagall Act of 2013'.⁴⁵ The bill's stated goal was to reinstitute the key operative provisions of the Glass-Steagall Act of 1933 that were repealed by the GLB Act. The proposed bill would: (1) expressly prohibit federally insured deposit-taking institutions from affiliating or

⁴⁵ The original text of the proposed legislation is available at <http://www.warren.senate.gov/files/documents/21stCenturyGlassSteagall.pdf>.

having interlocking management with securities firms, insurance companies and derivatives dealers; and (2) tighten the scope of banks' permissible activities, among other things, by prohibiting investments in structured or synthetic products.⁴⁶ The existing statutory category of an FHC would be eliminated, and all FHCs would have to terminate their non-conforming activities and divest all of their securities, insurance and derivatives subsidiaries within a five-year period.⁴⁷

Another intriguing parallel between the country's two great financial crises in modern history is the recent *re*-emergence of proposals for even more radical restructuring of the financial sector along the lines of so-called 'narrow' or 'utility' banking. Today's proponents of 'narrow banking' advocate separating banks' deposit-taking function from their lending function, thus restricting or even taking away banks' power to create credit and money and effectively turning them into 'safe' money-market mutual funds (Levitin, 2016; Wilmarth, 2012; Pennacchi, 2012; Kotlikoff, 2011). In principle, these proposals build on the idea of '100 percent reserve banking', advanced in the wake of the Great Depression by economists Irving Fisher and Henry Simons and later developed by the Austrian and Chicago school economists (Levitin, 2016: 414). While some of the current variations allow 'narrow banks' to engage in low-risk lending (White, 2016), others restrict banks' activities to providing basic payments and safekeeping services and investing in government debt and other short-term money instruments. It is difficult to envision how 'narrow banking' proposals would be implemented in practice, given the fact that any attempt to do so would entail sweeping changes in the way credit is created, monetary policy is conducted, and financial services are performed and regulated (Levitin, 2016).

A conceptually different proposal seeks to preserve financial stability by strictly limiting and regulating the universe of financial institutions authorized to issue deposit-like short-term liabilities, such as repos (Ricks, 2013). Under this 'licensed money' regime, entities authorized to issue federally-guaranteed short-term 'money-claims' would be subject to what closely resembles the existing US bank regulation, including capital requirements and activity limitations. Much like the existing US regulation, the proposed regime would generally allow affiliations between licensed money-claim issuers and other financial institutions within a single

⁴⁶ *Ibid*, Sec.3.

⁴⁷ *Ibid*, Sec.4.

DRAFT

corporate structure. Unlicensed entities, however, would be prohibited from funding themselves by issuing money-claims (Ricks, 2013). The primary purpose of this approach is to reduce the likelihood of destabilizing panics of the kind that took place in the fall of 2008. From a structural perspective, this regime would operate as a readjustment, rather than a complete overhaul, of the existing model. Nevertheless, by limiting access to short-term funding markets, the proposed scheme can potentially shrink the shadow banking sector, a major source of financial instability and systemic risk.

As this brief overview demonstrates, the future trajectory of structural reforms in the US remains a deeply contested subject. Of course, the center-stage in today's policy debate is occupied primarily by the familiar issues related to the implementation of Dodd-Frank and Basel III rules (Fischer, 2016; Yellen, 2015). Yet, just beneath the surface or in the background of these regulatory issues *de jour*, there is a persistently open question of whether the ultimate remedy for systemic risk must operate on the more fundamental level of the institutional structure of finance.

V. WHY IT MATTERS: STRUCTURAL REFORM ON CENTRAL BANKS' AGENDA

Even a brief description of structural reforms currently pursued or contemplated in the US, UK and EU underscores their potentially transformative and far-reaching impact on the global financial system. Although not much has happened yet to bring such transformative effects to life, structural reform already occupies an increasingly important place on central banks' policy agenda. An obvious reason for it is the fact that central banks are often given formal responsibilities to implement and administer laws governing financial industry structure, such as the Volcker Rule or the UK's ring-fencing regime. More generally, however, this heightened post-crisis salience of industry structure on central banks' agenda is both (1) a logical extension of their newly affirmed focus on safeguarding financial stability, and (2) an institutional response to the growing pressures on central banks to act as default regulators of 'all things systemic'—and, as part of this *de facto* mandate, to fill the gaps that a successful structural reform of the financial industry ought to fill. The discussion below elaborates on these more subtle links.

1. Systemic Risk Implications: The Pros and Cons of Structural Reform

To the extent that the structure of the financial services industry significantly affects long-term financial and monetary stability, it should be an issue of high importance to central banks. Given the high stakes involved, however, it is not surprising that the ability of any particular structural measure to reduce systemic risk in practice is always a subject of heated debates. So, what are the main potential benefits and harms of using structural reform—a blunt regulatory tool—to solve the complex puzzle of systemic risk prevention? While the preceding discussion of European and US reforms mentioned some of the arguments for and against them, a brief recap of these arguments’ key points helps to highlight why central banks should—and, to a great extent, already do—have a strong voice in this debate.

As a general matter, structural reforms are typically justified on several grounds (Mitchell, 2014; PRA, 2014; Merkley and Levin, 2011). First, all of the current structural reforms, described above, are rationalized as hard-wired measures necessary to protect the safety and soundness of publicly-guaranteed core depository institutions by insulating them from the *additional*, often *different* in their dynamics, risks generated elsewhere in the financial markets.

Second, it is claimed that legal, economic and organizational barriers between core depositories and other financial intermediaries would help to prevent the emergence of TBTF conglomerates that enjoy unjustified ‘special’ privileges and are largely shielded from operation of market discipline. This line of argument ties together concerns about potential leakage of public subsidy to support financial speculation and concerns about costly public bailouts of large financial conglomerates.

Third, structural reforms are often explicitly aimed at eliminating or minimizing potential conflicts of interest that arise when banking institutions are allowed to have a direct economic stake in a wide variety of financial transactions. In addition to preventing banks from abusing their informational and funding advantages to the detriment of their clients, these measures seek to increase the allocative efficiency in markets for capital.

Fourth, all of the current reform efforts are advocated as an effective method of simplifying the organizational structure of large financial conglomerates and, as a result, making it easier for the regulators to regulate and supervise them. Drawing categorical lines between

permissible and impermissible activities is meant to define a more manageable and transparent universe, both for the purposes of financial institutions' internal governance and for the purposes of government oversight. As the discussion above illustrates, an important thread in this line of argument is the expectation that structural separation would increase the resolvability of individual financial institutions.

At the same time, however, many industry insiders and observers remain skeptical about the ability of the ongoing structural reforms, discussed above, to deliver on their promised benefits. In general, these reforms are criticized as unnecessarily harsh and excessively blunt measures that, contrary to their proclaimed goals, would significantly diminish both the safety and soundness of individual banks and overall systemic stability. Critics argue that breaking up financial conglomerates will destroy crucial efficiencies and economies of scale and scope, which arise from combining different specialized financial intermediaries. They argue that limiting banks' permissible activities and affiliations will render them incapable of diversifying their assets and thus increase their risks. They also claim that such measures will increase systemic risk by driving risky activities from the regulated banking sector into the unregulated—and, therefore, more dangerous—shadow banking sector (Guynn and Kenadjian, 2015; Huertas, 2015).

Another set of objections to structural reforms focus primarily on thorny issues of practical implementation. Critics argue that these reforms impose unjustifiably high compliance costs on the financial industry. They claim that mandated structural changes are extremely complicated, while the legislative and regulatory rules are insufficiently detailed to provide meaningful guidance for the industry. As a result, the reforms are seen as not only harmful but impracticable (Guynn and Kenadjian, 2015; Huertas, 2015).

It is not the purpose of this chapter to adjudicate the relative merits of these arguments. What is more interesting for present purposes is that, in essence, these criticisms point at the fundamental problem that all structural reforms seek to resolve but inevitably recreate at a new level—the regulatory 'boundary' problem (Goodhart, 2011, Brunnermeier et al, 2009). This perennial 'boundary' problem arises from the fact that (almost) any effective finance-regulatory measure restricts regulated entities' ability to generate the highest private profits they otherwise could generate (Brunnermeier et al, 2009: 67). As the returns achievable in the regulated sector

fall, regulated entities seek to shift their business activities to the unregulated sector that promises higher profits. The crux of the boundary problem is not simply the inevitable dilutive, or even outright subversive, effects of these activity flows on the relevant regulatory regime, but also the inherent procyclicality of such flows:

During good times funds will flow from the regulated to the unregulated, and the regulated will seek to find ways of transferring business to unregulated associates. During crises the flow will reverse, likely with serious adverse consequences ((Brunnermeier et al 2009: 69).

The boundary problem is a generic phenomenon associated with any effective finance-regulatory action (Goodhart, 2011: 342), and indeed is familiar in broader legal and regulatory debates generally. However, it is especially salient in the context of structural reform, simply because a direct government-mandated reordering of intra-industry and intra-firm divisions is the quintessential *boundary-building* exercise.⁴⁸ Moving from the less restrictive to the more restrictive choices on the continuum of structural reform, moreover, tends to exacerbate the regulatory boundary problem.

By leaving organizational decisions largely to the firms' managers, the universal bank model allows a relatively free flow of financial activities within and among individual entities.⁴⁹ While the universal bank model is less likely to create acutely visible boundary problems, it is also less likely to protect large conglomerates' core banking operations from contagion and other externally generated risks. This trade-off was laid bare during the recent financial crisis and provided the impetus for European efforts to move toward a more restrictive holding company model.

By insulating the groups' core banking operations from the rest of their activities, the holding company model makes the boundary problem both more visible and more challenging. This reflects a fundamental tension at the heart of the model: while each banking group (an FHC, in the US regulatory vocabulary) is a single economic enterprise, it is prohibited from taking full advantage of its bank subsidiaries' low funding costs and large balance sheet capacities. The

⁴⁸ Goodhart identifies geographic cross-border flow of financial activities as a separate 'boundary' problem (Goodhart, 2011). While cross-border arbitrage is a critical issue in financial regulation, it is not addressed in this chapter.

⁴⁹ In practice, universal banks are often set up as conglomerates (*e.g.*, European bancassurance groups), but these decisions are driven by factors other than a special industry-wide legislative or regulatory scheme seeking to control systemic risk through mandatory large-scale structural segmentation.

U.S. experience, especially after the passage of the GLB Act in 1999, vividly illustrates both the inevitable procyclical flows of activities and risks across that intra-entity regulatory border and the difficulty of policing such flows from the outside (Omarova, 2011; Omarova, 2009).

The boundary problem is most salient—and controversial—in the strict separation model that imposes the most overtly restrictive activity prohibitions on the entire banking group. What makes this approach intuitively appealing is the clarity of the bluntly drawn lines between what is in, and what is out, of the entire banking group’s business perimeter. If successful, this approach is more likely to bring the greatest expected benefits of structural separation, as outlined above. The degree of its success, however, is much more directly tied to the regulators’ practical ability to manage the stark boundary problem it creates—a tall order, especially in boom times. Not surprisingly, one of the key arguments in favor of the current European choice to keep trading activities within banking groups is that this more moderate approach would minimize the outflow of risky activities into the unregulated sector, thus minimizing the severity of the boundary problem (Gambacorta and Van Rixtel, 2013).

In sum, placing specific structural reform efforts in this conceptual context highlights the importance of an inherent trade-off between their potential to yield systemic stability-enhancing benefits, on the one hand, and the severity of the boundary problem they raise, on the other. It also shows why the Federal Reserve, Bank of England (‘BoE’), European Central Bank (‘ECB’), and other European countries’ central banks—these designated guardians of systemic financial stability in the post-crisis era—must play the key role in deciding where and how to draw the newly pertinent structural boundaries. What is less intuitively obvious, however, is that central banks also have a significant *institutional* stake in the successful outcome of the current—and, potentially, future—efforts to restructure financial services industry.

2. Institutional Implications for Central Banks

In order to appreciate fully why structural reform is an issue of critical importance to central banks, it is helpful to consider the effects of structural choices on their jurisdictional reach, liquidity support function, substantive regulatory and supervisory mandates, and institutional capacity.

Regulatory perimeter

Structural divisions in the financial sector fundamentally shape, and are shaped by, the jurisdictional lines defining the responsibilities and powers of the central bank, both as a monetary policy-maker and as a financial sector regulator. The most readily available examples of this dynamic arise in connection with central banks' exercise of their explicit regulatory and supervisory authorities.

Thus, in the US, the statutory criteria for subjecting banking groups to regulation and supervision by the Federal Reserve under the BHC Act establish a crucial structural division in the US financial sector. Before the recent crisis, much of the regulatory arbitrage in the US financial sector involved effective replication of banking activities outside, or on the edges, of the Federal Reserve's regulatory perimeter (Gerding, 2014). By expanding the outer limits of BHC-permissible activities, the GLB Act significantly expanded the Federal Reserve's jurisdictional reach to include 'umbrella' oversight of securities, insurance and other FHC-permissible activities. The post-1999 changes in financial markets, in turn, led to further expansion of the Federal Reserve's regulatory perimeter under the Dodd-Frank Act, which brought within it two new categories of 'systemically important financial institutions' ('SIFIs') and 'financial market utilities'. While well-justified on systemic risk grounds, these measures potentially complicate both the existing industry structure and the Federal Reserve's regulatory and supervisory duties. They may also encourage new forms of regulatory arbitrage, as financial firms seek to position themselves inside or outside the newly expanded Federal Reserve jurisdiction.⁵⁰

Liquidity support perimeter

Structural reforms can also have a potentially significant impact on central banks' traditional lender-of-last-resort ('LOLR') role. On the most basic level, drawing structural boundaries in a way that limits direct access to central bank liquidity backup facilities only to closely regulated 'core' banks creates powerful incentives for financial institutions to acquire such subsidy-eligible

⁵⁰ By early 2016, two designated SIFIs, General Electric and MetLife, have already decided to divest some of their business lines. See, Ryan Tracy, 'MetLife's Planned Divestiture is Latest Fallout From Stricter Regulation' *Wall St. J.* (12 January 2016). In June 2016, FSOC formally rescinded General Electric's SIFI designation. See, Ted Mann and Ryan Tracy, 'GE Capital Sheds "Systemically Important" Label' *Wall St. J.* (29 June 2016).

banks. At the same time, the growing volume and significance of money- and credit-creation outside of the regulated banking system put pressure on central banks to start providing liquidity support to a broad range of ‘shadow’ banks (Domanski et al, 2014; Tucker, 2014; Mehrling, 2011). This is exactly what happened during the 2008–09 crisis, when the Federal Reserve, BoE, ECB, and other central banks effectively acted as ‘dealers of last resort’ propping up markets in asset-backed securities and commercial paper (Domanski et al, 2014; Mehrling, 2011). Thus, to the extent that structural reforms succeed in severing the key channels of systemic interconnectedness and shrinking the size of the shadow banking sector, they will also help to resolve current ambiguity with respect to the post-crisis scope of central banks’ liquidity support functions.

Substantive regulatory mandate

Structural reforms also directly implicate issues related to central banks’ substantive regulatory mandates and supervisory tools. For instance, in a holding company model, one of the critically important substantive regulatory goals is effective maintenance of the internal structural boundary between publicly subsidized banks and their non-bank affiliates. As discussed above, the Federal Reserve administers both the general regime governing US banks’ transactions with affiliates under Section 23A of the Federal Reserve Act and the new ‘Super 23A’ regime under the Volcker Rule. The UK and EU reforms contemplate similar limitations on intra-group transactions, in recognition of the importance of the ‘height’ of the internal ‘fence’ (ICB, 2011).

‘Living wills’ and, more broadly, emerging group resolution regimes provide another example of how industry structure shapes central banks’ supervisory toolkits. It is the continuing existence of large bank-centered conglomerates in the US and EU that necessitates periodic production and supervisory review of their complex internal resolution plans, or ‘living wills’. As experience shows, however, it is a highly complicated and controversial exercise, whose practical usefulness remains subject to doubt (Heltman, 2016). By contrast, restructuring the financial industry along the lines of a more strict separation would likely render the institution of ‘living wills’—as well as complex special regimes for bank affiliate transactions—either superfluous or far less critical for systemic risk purposes.

Institutional capacity and autonomy

Financial sector structural reforms are also potentially relevant from the point of view of central banks' institutional capacity to perform their numerous functions. As examples above show, it appears that, in general, less clearly defined structural boundaries put greater pressures on the central bank's capacities as a financial regulator and supervisor, monetary authority and last-resort liquidity provider. The Volcker Rule, with its highly complex and context-dependent hierarchy of activity prohibitions and allowances, provides a vivid illustration of this capacity-pushing effect.

Central banks' capacity is also closely tied to their institutional autonomy and independence, not only from politicians but also from private interest groups (Conti-Brown, 2016). Allowing extensive structural affiliations between banks and other financial firms accordingly expands the central bank's regulated-industry constituency. Facing a greater number of larger—and more closely economically and politically aligned—industry actors potentially increases the likelihood of certain perniciously subtle forms of regulatory capture and erosion of the central bank's mission-oriented culture (Kwak, 2014; Baxter, 2012).

To summarize, issues of financial industry structure are deeply embedded in—indeed, they permeate—central banks' evolving regulatory and policy agenda. Highlighting the determinative effects of underlying structural choices on central banks' daily functions helps to appreciate why central banks need to develop a better understanding of the potential implications of specific structural reforms both for long-term financial stability and for their own institutional design and development.

VI. CONCLUSION

The purpose of this chapter is to start exploring some of the complex issues that post-crisis reforms of financial industry structure present in the context of central banks' evolving efforts to safeguard systemic financial stability. The structure of the financial system is one of the key determinants of the system's ability to contain and moderate—or, conversely, transmit and amplify—risks generated in particular market segments (Caruana, 2010). And the more complex

DRAFT

and fast-moving the financial system is, the higher is the importance of specific structural choices and boundaries that channel and organize its inner flows.

Explicitly confronting these choices will help central banks to establish a more robust framework for pursuing their broad systemic stability goals. By contrast, failure to understand the full implications of structural reforms—and to assert a more cohesively articulated and public role in shaping their objectives and outcomes—threatens to make central banks’ post-crisis job more difficult to perform and less likely to bear fruit. Unresolved structural problems will not simply dissipate but will likely resurface on the central banks’ ‘to-do’ lists, albeit in a different guise and in an ad hoc manner. In order to avoid having to play endless rounds of ‘whack-a-mole’, it might be necessary for central banks to put financial sector structural reform on top of their present policy priorities.

REFERENCES

Alexander, K (2015) ‘Regulating the structure of the EU banking sector’ (16) *Eur. Bus. Org. L. Rev.* 227–53.

Bank of England (BoE) (2011) *Instruments of Macroprudential Policy: A Discussion Paper* (2011).

Bank for Int’l Settlements (BIS) (2012) *Models and Tools for Macroprudential Analysis* (Basel Comm. on Banking Superv, Working Paper No 21, 2012), available at http://www.bis.org/publ/bcbs_wp21.pdf.

Baxter, LG (2012) ‘Understanding Regulatory Capture: An Academic Perspective From the United States’ in Stefano Pagliari (ed), *The Making of Good Financial Regulation* 53 (Guildford: Grosvenor House Publishing Ltd).

Benston, GJ (1994) ‘Universal banking’ 8 *J. Econ. Persp.* 121–43.

Brunnermeier, MK, Crockett, A, Goodhart, C, Persaud, A and Shin, H (2009) *The Fundamental Principles of Financial Regulation*, Geneva Reports on the World Economy 11.

Caruana, J (2010) *Systemic risk: how to deal with It?* BIS.

Chow, JTS and Surti, J (2011) *Making Banks Safer: Can Volcker and Vickers Do It?* IMF Working Paper WP 11/236.

DRAFT

Conti-Brown, P (2016) *The Power and Independence of the Federal Reserve* (Princeton NJ and Oxford: Princeton University Press),

Duffie, D (2012) *Drawing Boundaries Around and Through the Banking System*, The Financial Development Report 2012, Ch 1.2, pp 39–46.

Davidoff, SM (2012) ‘Under Volcker, Old Dividing Line in Banks May Return’ *NY Times Dealbook* (21 February).

Dierick, F (2004) *The Supervision of Mixed Financial Groups in Europe*, ECB Occasional Paper No 20.

Domanski, D et al (2014) *Central banks as lenders of last resort: experiences during the 2007-2010 crisis and lessons for the future*, BIS Paper No 79.

Dombalagian, OH (2013) ‘The expressive synergies of the Volcker rule’ 54 *Bos. Coll. L. Rev.* 469.

ECB (2005) ‘Consolidation and diversification in the Euro banking sector’ *ECB Monthly Bulletin* (May).

Eisinger, J (2012) ‘The Volcker Rule, Made Bloated and Weak’ *NY Times Dealbook* (22 Feb).

Federal Reserve Bank of Minneapolis (2016) *The Minneapolis Plan to End Too Big to Fail*.

Fischer, S (2016) ‘Monetary Policy, Financial Stability, and the Zero Lower Bond’, Remarks at the Annual Meeting of the American Economic Ass’n, San Francisco, CA (3 January).

Freshfields Bruckhaus Deringer LLP (2014) *Structural reforms of EU banks: The European Commission’s Liikanen Proposals*.

FSA (2009) *The Turner Review: A Regulatory Response to the Global Financial Crisis*, available at http://www.fsa.gov.uk/pubs/other/turner_review.pdf.

Gambacorta, L and van Rixtel, A (2013) *Structural bank regulation initiatives: approaches and implications*, BIS Working Paper No 412.

Gerding, EF (2014) *Law, Bubbles, and Financial Regulation* (London and New York: Routledge).

Goodhart, CAE (2011) ‘Financial Regulation’ in S Eijffinger and D Masciandaro (eds), *Handbook of Central Banking, Financial Regulation and Supervision* (Cheltenham and Northampton, MA: Edward Elgar) 326–53.

Gordon, JN and Ringe W-G (2015) *Bank Resolution in Europe: the Unfinished Agenda of Structural Reform*, ECGI Working Paper No 282/2015 (January).

DRAFT

Guynn, RD and Kenadjian, PS (2015) ‘Structural Solutions: Blinded by Volcker, Vickers, Liikanen, Glass-Steagall and Narrow Banking’ in Patrick S Kendjian and Andreas Dombret (eds), *Too Big To Fail III: Structural Reform Proposals – Should We Break Up the Banks?* (Berlin: De Gruyter Recht) 125–44.

Heltman, J (2016) ‘Warren Presses Yellen Over Living Will Determination’ *American Banker* (11 Feb).

High-Level Expert Group on Reforming the Structure of the EU Banking Sector (2012) chaired by Erkki Liikanen, Final Report (2 October) (the Liikanen Report).

Hockett, RC (2015) ‘The macroprudential turn: from institutional ‘safety and soundness’ to systematic “financial stability” in financial supervision’ 9 *Va. L. and Bus. Rev.* 201.

Huertas, TF (2015) *Six Structures in Search of Stability*, LSE Financial Markets Group Paper Series, Special Paper 236, available at <http://www.lse.ac.uk/fmg/workingPapers/specialPapers/PDF/SP236.pdf>.

Independent Commission on Banking (ICB) (2011) *Final Report: Recommendations*.

International Monetary Fund (IMF) (2012) ‘Policies for Macrofinancial Stability: How to Deal with Credit Booms’ available at www.imf.org/external/pubs/ft/sdn/2012/sdn1206.pdf.

Kashkari, N (2016) ‘Lessons from the Crisis: Ending Too Big to Fail’, Remarks at the Brookings Institution, Washington, DC (16 Feb).

Kotlikoff, LJ (2011) *Jimmy Stewart is Dead: Ending the World’s Ongoing Financial Plague with Limited Purpose Banking* (Hoboken NJ: John Wiley and Sons).

Kwak, J (2014) ‘Cultural capture and the financial crisis’ in Daniel Carpenter and David A Moss (eds), *Preventing Regulatory Capture: Special Interest Influence and How to Limit It* (New York: Cambridge University Press) 71–98.

Levitin, AJ (2016) ‘Safe banking’ 83 *U. Chi. L. Rev.* 357.

Massari, JR and Rosenberg, GD (2015) ‘The perils of a middle road to regulating systemic risk: the Volcker rule’s risk backstop provisions’ 104 *Geo. L. J. Online* 145.

Mehrling, P (2011) *The New Lombard Street: How the Fed Became the Dealer of Last Resort* (Princeton NJ and Oxford: Princeton University Press).

Merkley, J and Levin, C (2011) ‘The Dodd-Frank Act restrictions on proprietary trading and conflicts of interest: new tools to address evolving threats’ 48 *Harv. J. on Legis.* 515.

DRAFT

Mitchell, J (2011) ‘Structural banking reforms’ in National Bank of Belgium (NBB), *Financial Stability Review 2011*, 99–111.

Omarova, ST (2009) ‘The quiet metamorphosis: how derivatives changed the “business of banking”’ 63 *U. Miami L. Rev.* 1041.

Omarova, ST (2011) ‘From Gramm-Leach-Bliley to Dodd-Frank: the unfulfilled promise of Section 23A of the Federal Reserve Act’ 89 *N. C. L. Rev.* 1683.

Omarova, ST (2013) ‘The merchants of Wall Street: banking, commerce, and commodities’ 98 *Minn. L. Rev.* 265.

Pennacchi, G (2012) ‘Narrow banking’ 4 *Ann. Rev. of Fin. Econ.* 1.

PRA (2015) ‘The implementation of ring-fencing: legal structure, governance and the continuity of services and facilities’, Policy Statement, PS10/15.

Prudential Regulation Authority (PRA) (2014) ‘The implementation of ring-fencing: consultation on legal structure, governance and the continuity of services and facilities’, Consultation Paper, CP19/14.

Quintana, JA, Levin, M and Soares, E (2014) ‘Structural measures to improve the resilience of the EU Banking System’ in E Jokivuolle and J Vilmunen (eds), *Banking After Regulatory Reforms – Business as Usual?* (Brussels: Larcier) 11–26.

Ricks, M (2013) ‘A regulatory design for monetary stability’ 65 *Vanderbilt L. Rev.* 1289.

Sheppard, L (2014) ‘The loopholes in the Volcker Rule’ *Forbes* (8 January).

Tucker, P (2014) *The lender of last resort and modern central banking: principles and Reconstruction*, BIS Paper No. 79 (September), 10–40.

White, AM (2016) ‘Banks as utilities’ 90 *Tulane L. Rev.* 1241.

Wilmarth, AJ (2015) ‘A two-tiered system of regulation is needed to preserve the viability of community banks and reduce the risks of megabanks’ 2015 *Mich. St. L. Rev.* 249.

Wilmarth, AJ (2012) ‘Narrow banking: an overdue reform that could solve the too-big-to-fail problem and align U.S. and U.K. regulation of financial conglomerates’ 31 *Banking and Fin. Serv. Policy Rep.* 1.

Yellen, JL (2015) ‘Improving the Oversight of Large Financial Institutions’, Speech at the Citizens Budget Commission, New York, NY (3 March).