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Rethinking the Law in “Safe Assets”

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Rethinking the Law in “Safe Assets”

Anna Gelpern and Erik F. Gerding*

I Introduction

There is no such thing as a risk-free investment. Nonetheless, multitrillion-dollar global markets seem to operate on the assumption that some financial contracts have done away with risk for all practical purposes. When the assumption fails, the consequences are dire. During financial crises in the United States and Europe, investors abruptly lost confidence in AAA-rated mortgage-backed securities, Euro-area government debt, and other contracts once considered super-safe. Panic selling, firm failures, government rescues, and economic contraction followed.

This experience refocused policy, market, and academic attention on the problem of “safe assets.” The term describes a variety of financial claims on public or private sector entities that are used as if they were risk-free. Government debt, central bank debt and money are publicly produced safe assets. Bank deposits, highly rated corporate debt, repos and asset-backed securities are privately produced safe assets. Although the idea has been part of risk-management strategies, asset pricing models and financial regulation for a long time, an influential strand of postcrisis economic thinking has recast safe assets as central to financial instability.¹ Some have gone further to define safe assets

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¹ Caballero 2009; IMF 2012.

as a category apart from the others, an elementary particle of all financial activity that merits special protection in regulatory design.² This stands in contrast to the more traditional view that policy makers should not create protected asset categories, and instead should encourage investors to manage the risk embedded in all financial contracts.³

Underlying the economic debate, safe assets pose a high-stakes legal problem. Statutes, regulations, administrative agency, and private contracting practices allow, encourage, and constrain both the production of these financial contracts and market actors' ability to use them as if they were safe. If safe assets are under or overproduced, or misused, or if safety is misperceived, the law is at least partly to blame. Yet the law makes only an episodic appearance in the writing on safe assets, usually as a source of distortion.⁴ In our view, analysis and policy design suffer for lack of an overall legal framework for thinking about safe assets. Our chapter considers the legal dimension of safe assets, and points to the policy and regulatory implications to be examined in future work. This project complements the economic perspectives, but is not wedded to any one among them.

In the economic and policy literature, safe assets perform multiple functions. They are collateral for lending, a store of value, a baseline for pricing other investments, a hedge against risk, and a source of liquidity. In many respects, they are like money; however, the term "safe assets" covers a broader and more heterogeneous set of claims, including those that perform only part of money's functions. For example, some can be used for long-term savings, but not as a medium of exchange in transactions.

Nevertheless, as described by economists, all safe assets share three attributes. *First*, they represent an effort to minimize risk. When a single asset minimizes multiple risks – for example,

² Gorton, Lewellyn, and Metrick 2012.

³ Hannoun 2011; Nouy 2012; Portes 2013.

⁴ IMF 2012; BIS 2012; Gorton et al. 2012.

credit, liquidity, and market risk – it may be used for multiple purposes. When multiple assets minimize similar risks, investors might substitute them for one another. *Second*, safe assets are used in a discontinuous way. For example, regulated firms are either permitted or forbidden to make certain investments.⁵ Similarly, traders in large and active markets demand collateral that can change hands “no questions asked,” without inquiring into its risk attributes; otherwise, it is unsuited for this purpose.⁶ *Third* and related, safe assets are used across the financial system, and promote interconnectedness within it – in postcrisis regulatory parlance, they are apt to be systemically important financial contracts.⁷ An abrupt loss of safety or a shift in perception shocks the system as a whole, and calls for government intervention.

Together, the three attributes give safe assets pride of place in theories about financial crises: they help weave a coherent story. In the mid-2000s, some central banks dramatically increased purchases of highly rated foreign sovereign debt.⁸ Financial institutions replaced sovereign debt in their portfolios with privately engineered safe assets, such as mortgage-backed securities.⁹ When risk rematerialized, investors quickly lost confidence in the engineered assets, which magnified and transmitted shocks throughout the global financial system.¹⁰ Governments intervened on a large scale. They bought “toxic” assets that had lost their safety from financial firms, and replaced them

⁵ Cf. Fisher 2013 at 67.

⁶ Dang, Gorton, and Holmstrom 2013a.

⁷ The analogy is to systemically important financial institutions and their kin. See e.g., “Financial Stability Board,” *Policy Areas—Systemically Important Financial Institutions (SIFIs)* at www.financialstabilityboard.org/list/fsb_pa/tid_174/index.htm (last accessed on September 21, 2014). We have each written about contracts as a source of systemic risk elsewhere (e.g., Gerding 2013; Gelpern 2009; Gelpern and Levitin 2009; Gelpern and Gulati 2013).

⁸ The relative importance of this debt as a savings vehicle and an exchange rate management tool for exporting countries is debated. See, e.g., C. Fred Bergsten and Joseph E. Gagnon, *Currency Manipulation, the US Economy, and the Global Economic Order*, Peterson Institute for International Economics Policy Brief (Dec. 2012); Roubini and Setser 2004; Setser 2008; Marc Labonte and Jared C. Nagel, *Foreign Holdings of Federal Debt*, Congressional Research Service RS22331 (June 2014).

⁹ Bernanke, Bertaut, DeMarco, and Kamin 2011.

¹⁰ Caballero 2009; IMF 2012.

with cash and government debt (publicly produced safe assets).¹¹ Postcrisis financial reforms shifted attention to the role of regulation in the market for safe assets. Market, academic, and policy observers predicted that new prudential requirements would boost demand for some traditional safe assets, such as government debt, constrain the supply of others, such as bank debt or senior asset-backed securities, and push investors to use riskier assets as if they were safe.¹² The resulting imbalances would fuel the next crisis. As we note later in the chapter, this is far from the only plausible story of the crisis, but it is one that has gained considerable traction among economists and policy makers.

Two related fears motivate the economic literature: *first*, the fear that supply and demand imbalances in safe assets feed financial crises, and *second*, that the world may face a shortage of safe assets.¹³ This puts safe assets squarely in the realm of macroprudential policy, with its objective of making the financial system as a whole more stable and resilient in the face of inevitable shocks (Group of Thirty 2010). In this chapter, we do not take a position on aggregate supply of and demand for safe assets, but consider the institutional mechanisms by which supply and demand might come about.

Legal tools mediate between the world in which every asset is risky, and the transactional and policy imperatives to act *as if* some assets are risk-free. The concept of safe assets is useful precisely because it abstracts from reality and thereby makes it actionable.¹⁴ When it is embedded in

¹¹ Caballero and Farhi 2014.

¹² BIS 2012; IMF 2012; Gorton et al. 2012; Ralph Atkins, “Crunch Feared if Collateral Rules Enforced: New Clearing Regulations Could Suck in \$10tn of Safe Assets,” *The Financial Times* (Feb. 5, 2013), www.ft.com/intl/cms/s/0/e7737740-6f85-11e2-b906-00144feab49a.html.

¹³ Caballero 2009; Gorton et al. 2012; IMF 2012. See also Cardiff Garcia, “The decline of ‘safe’ assets,” FTAlphaville (Dec 05, 2011, 09:23), <http://ftalphaville.ft.com/2011/12/05/778301/the-decline-of-safe-assets/>; Credit Suisse 2011. Some commentators vigorously dispute the shortage story. See, e.g., Portes 2013; Fisher 2013.

¹⁴ Safe assets might be seen as a variant of legal fiction – a widely held simplifying assumption, like corporate speech, tax citizenship, or dating a document “as of” a date different from the one on which it is signed. See Riles 2011 at 172–3; Riles 2010.

legislation, regulation, and contracting practice, this concept anchors expectations, and coordinates dispersed market participants to select a limited number of *relatively* low-risk investments for key functions in the financial system. In other words, safe assets are legally constructed,¹⁵ for good or ill. Legal analysis is therefore well-placed to inform the spectrum of macroprudential policy choices about safe assets: from fighting investor assumptions about safety at every turn, to reinforcing them with constitutional commitments.

This insight is hardly radical in law, but it stands in tension with the prevailing description of safe assets as an organic phenomenon. As we elaborate below, economists speak of poorly understood mechanisms and technologies to be discovered, like the Higgs boson particle in a supercollider, and of natural supply overwhelmed by demand.¹⁶ We see law and regulation shape virtually all aspects of safe assets.¹⁷ At a minimum, legislators, regulators, and the courts take a stand by simply allowing market participants to use assets as if they were safe, with consequences for financial stability. In practice, the law's role in safe assets is much more expansive. Our project is to describe this role in a reasonably comprehensive and systematic fashion, teasing out the implications for the macroprudential policy tool kit.

We offer a three-part framework for understanding the mechanisms by which the law fosters the production of safe assets, nurtures the development of the markets in safe assets, and promotes the continuing safety of safe assets in multiple states of the world. Our framework roughly tracks the three shared attributes highlighted earlier in this introduction. First, the law *makes* some assets less risky, for example, by mandating capital cushions for issuers of safe assets or giving investors in

¹⁵ Pistor 2013.

¹⁶ See, e.g., Gorton et al. 2012 (“[T]he relatively constant demand for safe debt suggests an underlying transactions technology that is not well understood.”); Caballero 2009 (“[T]hese institutions sought the profits generated from bridging the gap between this rise in demand and the expansion of its natural supply.”).

¹⁷ Our focus on the legal construction of financial markets follows Pistor 2013.

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those assets repayment priorities. Second, the law *labels* some assets as safe, reducing or eliminating market participants' incentives to discover their risk attributes. Third, the state *guarantees* the safety of assets when it perceives them to be important for the financial system as a whole. The law authorizes and frames the design of such guarantees.

For any given asset, governments both recognize the safety attributes that arise through private ordering and enhance them with regulation, labeling, and guarantees. If all goes well, the three categories of tools feed a virtuous cycle: for instance, when low-risk assets are labeled safe, it increases demand, broadens the investor base, boosts liquidity, and reduces the cost of funding for their issuers. On the flipside, when the tools are misaligned, they can contribute to instability. At the extreme, investors might herd into risky assets mislabeled as safe, then flee in panic when the perception of safety vanishes, with spillover effects on the broader economy. The government may have no choice but to step in with guarantees *ex post*, creating distortions and moral hazard.

The potential for virtuous and vicious cycles highlights the importance of distinguishing among, and dynamically aligning, the risk attributes of safe assets, market perceptions of their safety, and the public safety net. Our framework helps clarify each policy dimension and identify the tools best suited to address it. It is deliberately simple: while we propose a set of basic analytical distinctions (labeling an asset “safe” need not make it safe), we do not imply a mechanistic correspondence between policy objectives and legal tools. To the contrary, in drawing the distinctions we shed light on the pervasive overlaps, entanglements, and feedback effects in the institutional architecture of safe assets, and more broadly, of macroprudential regulation.

Furthermore, while most of our examples come from recent crises and illustrate the consequences of policy failures in the United States and Europe, keeping the framework sparse allows us to draw conclusions that apply more broadly.

Another contribution of this chapter is to suggest that macroprudential policy need not require a brand new toolkit. Our approach emerges from a description of how the law constructed four categories of safe assets – government debt, bank debt, repurchase agreements, and asset-backed securities – and how the construction unraveled in crisis. Each time, poor coordination among long-established legal and regulatory tools, rather than the tools themselves, stood out as a problem.

This chapter proceeds as follows. After this introduction, Part II surveys recent literature on safe assets. In Part III, we use four asset categories considered “safe” to show how safe assets are made, labeled, and guaranteed. In conclusion, we sketch out tentative policy implications and a research agenda.

II. The Safe Asset Debate

The phrase “safe asset” is sprinkled through economic research, policy papers, and law review articles going back decades.¹⁸ Until very recently, the phrase was not used as a term of art to denote a general phenomenon, but rather to describe investments that carried minimal risks, or as shorthand for modeling assumptions.¹⁹ The words “safe,” “riskless,” or “risk-free” were often enclosed in quotation marks or preceded by “relatively.”

¹⁸ A search of IMF, NBER, and Westlaw databases located hundreds of mentions between 1980 and 2007. A search for the phrase “safe asset” in IMF eLibrary, which contains the IMF’s periodicals, books, working papers and studies, and data and statistical tools (available at www.elibrary.imf.org/), resulted in forty-nine returns between 1980 and 2007 and thirty-six returns between 2008 and 2014; a search for the phrase “safe asset” or “safe assets” on National Bureau of Economic Research (NBER) Working Papers, a database segment consisting of working papers and articles published in journals (available at www.nber.org), resulted in eight articles and papers between 1980 and 2007 and eighteen articles and papers between 2008 and 2014; and search for the phrase “safe asset” on *WestLaw Law Reviews & Journals* database resulted in forty-nine articles between 1980 and 2007 and sixty articles between 2008 and 2014.

¹⁹ The following examples are typical. In economics: John Lipsky, Peter Keller, Donald J. Mathieson, Richard N. Williams, *International Bond Markets, International Capital Markets : Developments and Prospects*, IMF Occasional Paper No. 23, 08 July 1983, p. 34 (describing “institutional investors seeking relatively safe assets”); Morris Goldstein and Geoffrey Woglom, *Market-Based Fiscal Discipline in Monetary Unions: Evidence From the U.S. Municipal Bond Market*, IMF Working

By the mid-2000s, economists and policy makers focused on the flow of savings from countries with unmet development needs to the United States and Europe.²⁰ Some theorized that this “uphill” capital flow could be explained by developing countries’ inability to create enough financial instruments that could serve as reliable stores of value for the savings;²¹ though others blamed exchange rate management.

The onset of financial crises in the United States in 2007 and Europe in 2010 brought a shared sense of discontinuity, a sudden loss of safety for AAA-rated “supersenior” asset-backed securities and government debt, also described as a vanishing of secure investments.²² In 2011, market and policy radars detected a new kind of asset scarcity, this time driven by postcrisis risk aversion in mature markets.²³ By 2012, fears of scarcity and abrupt loss informed a growing body of research describing a category of financial contracts with shared attributes as a “cornerstone” of the global financial system.²⁴ “Safe assets” became a term of art with correspondingly large policy

Paper No. 91/89, 01 September 1991 (referring to safe assets as a baseline for bond interest rates); Garry J. Schinasi, Steven Riess Weisbrod, and Monica Hargraves, *Asset Price Inflation in the 1980's: A Flow of Funds Perspective*, IMF Working Paper No. 93/77, 01 October 1993, p. 21 (describing U.S. depository institutions taking on risk by “selling safe assets and retaining the relatively risky ones such as commercial mortgages”); Peter Diamond and John Geanakoplos, *Social Security Investment in Equities I: Linear Case*, Nat’l Bureau of Econ. Res., Working Paper No. 7103 (1999) (“We assume that the returns to the real assets are such that both risky and safe assets are held in equilibrium when the safe asset exists.”) In law: Joseph Bankman and Thomas Griffith, *Is the Debate Between an Income Tax and a Consumption Tax A Debate About Risk? Does it Matter?*, 47 TAX L. REV 377–59 (1992) (considering the effects of taxation on investment choices, as when “the combination of taxable gains and nonrefundable losses will reduce the expected return of risky assets below the return of safe assets, causing all investors to purchase riskless assets”); Jonathan R. Macey and Elizabeth H. Garrett, *Market Discipline by Depositors: A Summary of the Theoretical and Empirical Arguments*, 5 YALE J. ON REG. 215–39 (1988) (arguing that deposit insurance distorts bank managers’ incentives because “a managerial decision to shift the bank’s loan portfolio from a set of relatively safe assets to a set of highly risky assets will not affect in any way the interest the bank must pay to attract deposits.”).

²⁰ Bernanke 2005; Bernanke 2007; Summers 2004; Roubini and Setser 2004.

²¹ Caballero 2006; Caballero, Farhi, and Gourinchas 2008.

²² BIS 2012 at 59–60. See, e.g., John Carney, “How the crash of safe assets fueled the financial crisis,” CNBC, www.cnbc.com/id/101327578#.

²³ See Cardiff Garcia, “The decline of ‘safe’ assets, FTAlphaville (Dec 05 2011 09:23), <http://ftalphaville.ft.com/2011/12/05/778301/the-decline-of-safe-assets/>; Credit Suisse 2011.

²⁴ IMF 2012.

implications. This body of research is the departure point for our analysis; this part offers a summary overview.

A Why Safe Assets? Lumping

A unitary safe asset phenomenon helps generate unifying theories to explain the buildup of financial instability precrisis, investor behavior in crisis, and postcrisis disruptions in critical financial markets. The safe assets literature thus represents an intellectual exercise in “lumping” certain investors and investments to explore related market dynamics. There are two broad strands of lumping, reflecting different policy concerns. Using the proponents’ terminology, we refer to the strands as asset scarcity and transactions technology.

1 *Asset Scarcity*

Ricardo Caballero and colleagues have argued that demand from surplus countries for instruments to serve as a long-term store of value had knock-on effects in the U.S. financial system, which led to the crisis.²⁵ This account extends the authors’ earlier work on asset scarcity in the emerging markets.²⁶ In it, “insatiable” global demand for savings vehicles with minimal risk, such as U.S. Treasury securities, outstripped their supply. The imbalance put pressure on the U.S. financial system to produce more safe assets to fill the gap, feeding the boom in mortgage securitization, until the markets unraveled.²⁷ This line of inquiry focuses on safe assets as a store of value, with low credit and liquidity risks, and highlights the global dimension of supply and demand.

²⁵ Caballero 2009.

²⁶ Caballero et al. 2008.

²⁷ Caballero 2009.

Global asset scarcity analysis gained momentum when researchers and policy makers sought to link theories of global imbalances with explanations of the financial crisis as a product of regulatory failure. A U.S. Federal Reserve Board study of precrisis capital flows into the United States²⁸ distinguished between government savers' appetite for U.S. Treasury and U.S. housing finance "Agency" debt,²⁹ and demand from European financial institutions for riskier engineered assets. It pointed to European bank regulation as a potentially distinct ingredient in the demand for "private-label" mortgage-backed securities, and to flaws in the U.S. financial system, such as lax underwriting standards, that supported the private production of apparently safe assets to feed capital inflows from 2003 to 2007.³⁰

To serve as a government savings vehicle, an asset must generally have low credit risk. Unless otherwise specified in the investment mandate, many different assets might fit the bill; the choices are not necessarily discontinuous. On the other hand, to attract regulated institutions, it helps if the asset enjoys regulatory privileges, such as exemptions or low capital charges. Regulation thereby creates new continuities and discontinuities: firms might substitute higher-yielding, riskier assets for safe ones that come with the same privileges, and might discriminate among assets with the same risk profile based on their regulatory treatment.

Economists have also invoked ideas about global asset scarcity to explain why investors flocked to the United States even as securitization markets unraveled, and later continued to buy

²⁸ Bernanke et al. 2011.

²⁹ "Agency debt" refers to securities issued or backed by Fannie Mae, Freddie Mac, or Ginnie Mae. Fannie Mae (the Federal National Mortgage Association or FNMA), and Freddie Mac (the Federal Home Loan Mortgage Corporation or FHLMC), are government-sponsored enterprises (GSEs), which were taken over by the U.S. government in 2008. Ginnie Mae (the Government National Mortgage Association or GNMA) has been wholly owned by the U.S. government since its establishment in 1968. See Ginniemae.gov, *Ginnie Mae & the GSEs* (last updated 2/25/2013), available at www.ginniemae.gov/consumer_education/Pages/ginnie_mae_and_the_gses.aspx.

³⁰ Private-label securities are not backed by Agency guarantees. The combination of regulatory benefit and yields above U.S. Treasury and Agency securities could have made it worthwhile for the regulated firms in Europe to issue short-term debt to finance their purchases of U.S. private label mortgage-backed securities. Bernanke et al. 2011.

U.S. Treasury debt when it lost its AAA rating from Standard & Poor's to domestic political battles.³¹ They stress that investors not only try to minimize the risk of default and other loss of value over time, but also seek out “convenience attributes” in financial contracts – their money-like functions. In this view, demand begets demand: U.S. treasuries make good safe assets because they can be turned into cash instantly at face value, for use in transactions, simply because so many actors use them in so many ways. Few other assets play this role globally. We return to the money feature later in this part.

2 *Transactions Technology*

Gary Gorton, Stefan Lewellyn, and Andrew Metrick engage in a different sort of lumping. Instead of looking at global supply and demand, they consider the ratio of safe assets to total financial assets in the U.S. economy after World War II. They observe that this “safe asset share” remained remarkably constant – roughly 30 percent to 35 percent – from 1952 to 2010, while the ratio of financial assets as a proportion of the U.S. economy more than doubled.³² This leads them to conclude that safe assets are a necessary input in the financial system, part of a little-understood “transactions technology.”³³

The transactions technology view, as the term suggests, emphasizes trading over long-term savings (store of value) uses of safe assets, and focuses on their money-like characteristics. Gorton

³¹ IMF 2012; Krishnamurthy and Vissing-Jorgensen 2012.

³² Gorton et al. 2012. The authors make several crucial assumptions in calculating the safe asset share based on Federal Reserve Flow of Funds data. They start with total liabilities produced by the government and financial sector. They then make a series of adjustments including removing government liabilities held by other governmental entities, removing certain financial sector liabilities (such as mutual fund shares) on the theory that these are not information insensitive, and assume that 85% of mortgage-backed securities and other asset-backed securities are information insensitive and qualify as safe assets.

³³ Gorton et al. 2012.

and coauthors define safe assets as “information-insensitive debt,” or debt “immune to adverse selection in trading because agents have no desire to acquire private information about the current health of the issuer.”³⁴ The ideal safe asset is assumed to have minimal credit risk and is highly liquid – so much so that it can be traded “no questions asked” – especially useful as collateral to reduce counterparty risk. By definition, its uses are binary: once it pays for investors to research its risk attributes, the debt no longer qualifies as safe. A related paper highlights the downside of information-insensitive debt: it is prone to crashes and amplifies shocks when the insensitivity is lost, which helps explain the crisis.³⁵

The stability of the safe asset share suggests that the total amount of safe assets determines the size of the financial sector through some kind of transactions technology. The data in the paper suggest that safe assets appear to play a key role in the financialization of the U.S. economy since the late 1980s. However, the research does not link the safe asset share to economic growth.³⁶

The safe asset share has implications beyond transactions technology. Like those who write about global asset scarcity, Gorton and coauthors argue that safe assets substitute for one another, and that supply–demand imbalances can push investors to look for safety in new places. Most of the writing on safe assets describes hydraulic qualities of this sort; their paper goes a step further. It argues that, since the safe asset share is constant and since the government cannot fill all demand, financial firms perform a socially valuable task when they issue debt that is traded “no questions asked.” Attempts to “squench” safe asset production by banks or shadow banks would simply push

³⁴ Gorton et al. 2012.

³⁵ Dang et al. 2013a.

³⁶ Some researchers divide safe assets into claims of financial firms on one another (“inside liquidity”) and claims on the real economy or the government (“outside liquidity”). Pierre-Olivier Gourinchas and Olivier Jeanne, *Global Safe Assets*, BIS Working Paper No. 399 (December 2012) *citing* Bengt Holmström and Jean Tirole, *Private and Public Supply of Liquidity*, 106 *Journal of Political Economy* 1 (1998).

demand into even darker, less regulated corners of the financial system.³⁷ We revisit this image of organic growth suppressed by regulation in Part III.

B What Are the Uses and Attributes of Safe Assets? Splitting

The Global Financial Stability Report (GFSR), a flagship publication of the International Monetary Fund (IMF), takes much of the credit for raising the profile of “safe assets” as a term of art in a 2012 chapter entitled “Safe Assets: Financial System Cornerstone?”³⁸ Despite the “lumping” title, IMF researchers produced a detailed survey of the different users, uses and attributes of safe assets based on the economic literature and IMF data – an exercise in “splitting.”

Use, user, and asset permutations in the GFSR catalog seem endless. IMF researchers identify five broad uses for safe assets: (i) as a store of value and portfolio capital cushion, (ii) as collateral in repo and derivatives markets, (iii) as an element of compliance with solvency and liquidity regulation, (iv) as a pricing benchmark for riskier assets, and (v) as a tool in monetary policy operations. Each of these uses requires slightly different safety attributes.³⁹ For example, an asset makes a good store of value if it has minimal credit, inflation, and exchange rate risk. High market liquidity is important for transactional uses: an asset can serve as collateral in a wide range of financial transactions when it has a deep market and is easy to value, among other factors. In contrast, uses that respond to government policy emphasize the safety attributes specified by the relevant authorities, which may be different from those valued by the market. As we elaborate later, safe assets can also be used to make other safe assets.⁴⁰

³⁷ Gorton et al. 2012.

³⁸ IMF 2012; Portes 2013.

³⁹ IMF 2012 at 84.

⁴⁰ Krishnamurthy and Vissing-Jorgensen 2013; Gorton and Metrick 2010.

Some uses may be accommodated with multiple assets, while some assets may have multiple safe uses. For example, government debt, bank debt, and highly rated private debt can all serve as collateral, especially in calm economic times. Bank deposits and repos both have been used for liquidity management. Meanwhile, government debt is used both for savings and liquidity management. A shock can reduce the number and volume of assets suitable for safe use and increase demand for the remaining assets with multiple safe uses. Hence, again, the demand for U.S. Treasury debt at the height of the financial crisis.

Safe asset users include banks, official reserve managers and sovereign wealth funds, pension funds, central banks and nonbank financial institutions, including market infrastructure entities such as clearinghouses. A single user may have multiple uses for safe assets. For instance, while banks are by far the largest holders of safe assets according to the GFSR, their holdings meet several distinct needs. These include capital preservation and managing maturity mismatches, meeting regulatory requirements, and participating as primary dealers in government securities markets.

A different spin on splitting comes courtesy of law scholars writing about “money claims.”⁴¹ Economists writing about safe assets sometimes fold money in with the lot, since it can perform many safe asset functions at once: it can serve as a savings vehicle, a pricing benchmark, a hedge, and collateral. In contrast, Morgan Ricks draws a bright line between money – short-term, highly liquid claims including deposits and repo – and safe assets, which he defines as longer-term securities subject to market risk even when they have negligible credit risk.⁴² Money claims entail maturity transformation and expose the system to bank-style runs.⁴³ The implication is that money should be a priority for policy intervention.

⁴¹ Ricks 2012; Blair 2013; Ondersma 2013.

⁴² Ricks 2012.

⁴³ Some economists effectively make a similar argument when they say that money is the only safe asset.

Finally, there are the ultimate splitters, safe asset skeptics, who suggest that the term “safe assets” masks an incoherent category comprising a range of uses and attributes of safety with little in common, none of which inherently attach to any particular financial contract.⁴⁴ Some argue further that safe asset scholarship is damaging, because by describing and ascribing social value to a unitary phenomenon, it discourages risk assessment and calls for public backing of certain markets.⁴⁵

Although we recognize the analytical merits of splitting, our chapter focuses on a subset of traits shared by all the assets described here, and acknowledged by the splitters. Across diverse settings, all safe assets seek to reduce risk so much as to make it negligible, they are used in a binary fashion (safe or not) in critical markets, and are prone to lose their safety abruptly in crisis, triggering government rescues. For crisis prevention and resolution, it is important to understand how and why market actors come to use assets as if they were risk-free, how different safe assets can serve as building blocks and substitutes for one another, how perceptions of safety change, and how loss of safety invokes public backing. A unified category, however provisional, is a useful starting point for such analysis.

¶ Where Do Safe Assets Come From? Public and Private Production

Governments and private firms can produce safe assets. The safety of public safe assets derives in key part from governments’ unique fiscal and monetary powers. Debt issued by creditworthy private firms with a deep and liquid market may have the attributes of a safe asset. Public and private safe

⁴⁴ Fisher 2013.

⁴⁵ Portes 2013.

assets can also be made safer by contract, for example, using short maturities to enhance liquidity, tiering cash flows to reduce the risk of default, and requiring collateral to limit counterparty risk.⁴⁶

Economists show that purely private safe assets are especially vulnerable to systemic risk. They tend to lose their safety together in response to a common shock, and are more prone to transmit shocks across the financial system as contracts and financial engineering unravel. When the supply of safe assets in the economy shrinks, economic contraction may follow.⁴⁷ Governments respond with guarantees and central bank liquidity support.⁴⁸

The distinction between public and private production of safe assets is thin in practice. Governments and private market actors routinely collaborate to make and maintain safe assets.⁴⁹ Governments guarantee private debts, turning them into safe assets. They offer regulatory incentives for firms to buy designated assets, such as government, housing, or small business debt, creating markets in public and private safe assets. Central banks support such markets when they buy the assets or accept them as collateral in policy operations. Private credit rating agencies fueled precrisis growth in securitization (privately produced safe assets); their assessments were also incorporated in regulation.⁵⁰ In addition, public and private safe asset issuers appear to step in for one another at different times in the credit cycle: in good times, private safe assets make up for scarce public ones; in bad times, public safe assets make up for the lost safety of private ones.⁵¹

⁴⁶ Gorton and Penacchi 1990; IMF 2012.

⁴⁷ Greenwood et al. 2010.

⁴⁸ Gorton and Penacchi 1990.

⁴⁹ Cf. DESAN, MAKING MONEY: COIN, BANK CURRENCY, AND THE COMING OF CAPITALISM (forthcoming 2014), on money as a constitutional project.

⁵⁰ IMF 2012 at 83. Rating agencies' role in the market was amplified with "regulatory license" when ratings were incorporated in regulations: Partnoy 1999.

⁵¹ Caballero and Farhi 2014; Gorton and Ordonez 2013; Greenwood et al. 2010).

In this collaboration, there is a distinction between domestic and global safe assets. Governments can produce domestic safe assets by some combination of public credit, printing money, and regulatory fiat.⁵² Global safe assets must be accepted as such by market actors beyond a single government's control.⁵³ However, regulatory coordination can help broaden the acceptance of assets as safe.⁵⁴

D. Policy Problems and Unanswered Questions

We conclude by taking stock of the common threads, which we will pick up in Part III. In economic research, the concept of safe assets has helped describe a plausible path of the global financial crisis. This research tells how global and national demand for savings and liquidity management tools might have encouraged purchases of U.S. Treasury securities, and how it might have led some investors to seek out financial contracts engineered to be safe in some states of the world, but highly unstable in others. It also describes the substitution of publicly produced assets for private ones in crisis, and suggests how asset scarcity might manifest itself going forward.

Many parts of this story are contested. Yet there is widespread agreement that financial stability is at stake when market participants and policy makers get safe assets wrong. Investors may have trouble identifying and finding enough safe assets; they may also misjudge safety and herd into risky assets. When safety is treated as binary, a small shift in sentiment can trigger a selling stampede with dramatic spillover effects. Some commentators go a step further and claim that retrenchment can contribute to safe asset shortages, which might reduce financing for the economy and dampen

⁵² Reinhart and Sbrancia 2011.

⁵³ Mehrling 2013.

⁵⁴ See, e.g., "Capital Requirements Directive II (CRD II)" (treating Euro- area debt as risk-free).

growth. This view underpins arguments that policy should cultivate safe asset markets, or, at the other extreme, that it should fight general assumptions about safety.

Policy diagnoses and prescriptions are tentative, at least in part because there is no coherent account of how safe assets come about. Institutional descriptions are fragmented and foggy. IMF's GFSR takes a strong stand by attributing many disruptions in the safe asset markets to government intervention "distorting the price of safety";⁵⁵ however, empirical evidence is insufficient to link supply and demand to any dominant factor, be it regulatory intervention, regulatory arbitrage, or hydraulic pressure from surplus country savings. The relationship between safe assets and economic growth is similarly uncertain. Different views of how safe assets work yield different diagnoses of the problem, and radically different policy prescriptions: issuing more government debt,⁵⁶ foregoing debt restructuring,⁵⁷ relaxing shadow bank regulation,⁵⁸ or stripping government debt of regulatory privileges.⁵⁹

Our chapter focuses on one strand of unanswered questions. In Part III, we use four examples of safe assets to investigate the tools by which the law supports their creation and use, maintains their safety, and makes up for their failure.

⁵⁵ IMF 2012 at 82.

⁵⁶ Poszar 2013.

⁵⁷ Blommestein 2012.

⁵⁸ Gorton et al. 2012.

⁵⁹ Nouy 2011; IMF 2012; Weidmann 2013.

III Four Safe Assets

Government debt, bank debt, repos, and asset-backed securities have all been used widely as if they were risk-free. Over the past decade, each of these asset categories has played a prominent role in financial crises. Below we consider the lessons of their rise and fall.

A Government Debt

In some market and policy circles, October 18, 2010 marks the day when Euro-area government debt stopped being a safe asset – more important than the day Greece was found fudging its public accounts, or the day France lost its AAA credit rating.⁶⁰ The Franco-German Declaration made in Deauville on October 18 committed to strengthen fiscal discipline and economic policy reform, and also to establish a crisis management regime with “adequate participation of private creditors.”⁶¹

To the uninitiated, the leaders’ pledge of fiscal probity, to be enshrined in EU treaties and institutions, would make Euro-area government debt safer. But to the traders who sold on news from Deauville, the defining safety feature was Europe’s political commitment to avoid debt restructuring in any part of the Euro-area at all costs. This illuminates a core contradiction of sovereign debt as a safe asset.

Government debt may be the most commonly cited example of a safe asset. It may also be the most contradictory. At the start of 2014, the world’s governments had over \$44 trillion in

⁶⁰ Orphanides 2014; Gelper and Gulati 2013 at 380. For press commentary, see, e.g., Joshua Chaffin and Peter Spiegel, “Franco-German bail-out pact divides EU,” *Financial Times* (October 24, 2010), www.ft.com/intl/cms/s/0/56984290-df96-11df-bed9-00144feabdc0.html; Gillian Tett, “Get used to world without ‘risk free’ rate,” *Financial Times* (September 1, 2011). www.ft.com/intl/cms/s/0/52a9169e-d4b6-11e0-a7ac-00144feab49a.html.

⁶¹ “Franco-German Declaration, Statement for the France-Germany-Russia Summit” (October 18, 2010), www.euo.dk/upload/application/pdf/1371f221/Franco-german_declaration.pdf.

outstanding debt, with the United States, Europe, and Japan accounting for more than three-quarters of the total.⁶² On the one hand, this debt is a contract like any other. Its risk profile is a function of economic performance and market conditions, which support the debtor's ability to pay. Governments' unique ability to tax and print money makes their debt safer than most. Because governments are bigger and need more financing than most other domestic economic actors, the markets in their debt tend to be deeper and more liquid. But repayment also depends on the political priorities and constraints of the sovereign, often described as a willingness to pay. When a government fails to pay, creditors have very limited means to collect, because sovereign immunity puts most of the debtor's resources beyond their reach.⁶³ Theorists have struggled to reconcile governments' unique capacity to pay, the political limits on this capacity, and creditors' perennial willingness to hold sovereign debt despite weak enforcement and a rich record of defaults.⁶⁴

Because so many other safe assets use sovereign debt as a component part, it is important to understand what makes sovereign debt work as a safe asset – and whether the safe asset universe might have a hollow core. Minimizing the risk attributes in sovereign debt by law is challenging because, as already noted, sovereigns have trouble making credible commitments to repay. Even

⁶² World DataBank, Gross Central Government Debt Position, http://databank.worldbank.org/data/Views/Reports/ReportWidgetCustom.aspx?Report_Name=Table-C2.-Gross-Central-Gov.-Debt-Position&Id=46819dee27 (last visited 9/14/2014).

⁶³ Weidemaier 2013.

⁶⁴ For a literature summary, *see* Sturzenegger and Zettelmeyer 2007; Reinhart and Rogoff 2011. The tension is of constitutional proportions. For example, the Fourteenth Amendment to the U.S. Constitution expressly enshrines U.S. Treasuries' status as "no questions asked" debt: "The validity of the public debt of the United States ... shall not be questioned." The next sentence effects debt repudiation: it declares the debt of the Confederate States "null and void" as illegitimate. In 1935, the U.S. Supreme Court demonstrated that a government's control over payment media in the economy could strip its repayment promise of all value. *Perry v. United States* 294 U.S. 330 (1935). Euro-area governments in 2011 "solemnly reaffirm[ed] their inflexible determination to honor fully their own individual sovereign signature... as ... a decisive element for ensuring financial stability in the euro area as a whole" – and in the same breath blessed Greece's "exceptional and unique" recourse to debt restructuring. www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/123978.pdf.

when the promise is embedded in a foundational text, as in the U.S. Constitution and the European treaty complex, the penalty for walking away is uncertain at best.

Contractual tools such as priority, collateral, and indexation, common in private debt, might seem like a simple way out. Yet a scant few national governments issue subordinated, secured, or indexed debt on a significant scale – despite generations of proposals to that effect.⁶⁵ Seniority and collateralization ideas came back in the Euro-area crisis as a substitute for, or a complement to, cross-guarantees among member states; however, they have not been adopted.⁶⁶ Some observers have suggested that demanding security or collateral is by definition inconsistent with the idea of government debt as risk-free. For example, when governments issue short-term debt to reassure skeptical investors, the tenor responds to perceptions of risk – by definition, that debt is not a safe asset. Similarly, when governments borrow in foreign currency and under foreign law, they bolster their repayment commitment and make the debt safer; however, the fact that investors demanded it suggests that the debt is information sensitive.⁶⁷

On the other hand, when a sovereign's debt is otherwise treated as free from credit risk, its short-term debt can further minimize interest-rate risk over time and can be used more like money.⁶⁸ Put differently, short maturity can make already-safe government debt more like money, but it cannot turn risky promises into safe assets.

In sum, traditional contract tools might make some sovereign debt marginally safer; they do not make it information insensitive. The downside risk of these tools to the debtor is substantial:

⁶⁵ IMF 2004.

⁶⁶ See, e.g., Markus K. Brunnermeier et al., ESBies: “A realistic reform of Europe’s financial architecture” (October 25, 2011), www.voxeu.org/article/esbies-realistic-reform-europes-financial-architecture; Jacques Delpla and Jakob von Weizsäcker, “The Blue Bond Proposal,” *Bruegel Policy Brief Issue* 2010/03, www.bruegel.org/publications/publication-detail/publication/403-the-blue-bond-proposal/.

⁶⁷ See, e.g., Borensztein et al. 2006 at 23 (on “original sin”) and Zettelmeyer, Trebesch and Gulati 2013 (describing Greek debt issuance under English law).

⁶⁸ Greenwood, Hanson and Stein 2010; Ricks 2012.

Draft Aug. 29, 2015

they can signal investor risk perceptions, become politically sensitive for the debtor, and, in the end, are likely to run up against the sovereign commitment challenge when it matters most.

The value of government debt, like money, heavily depends on legal and institutional arrangements that create demand for it. Banks have been required to hold their own government's debt as a licensing condition; laws, regulations, and supervision practices encourage banks and nonbank financial institutions to buy government debt.⁶⁹ Regulatory privileges, such as the labeling of government debt as zero-risk, or including it in the limited range of permitted investments for regulated firms, create demand for government debt. Such privileges take on outsized importance when governments cannot credibly commit to pay. When governments use safety labels to foster a market in their own debt, they create a captive pool of savings to meet their borrowing needs, reassure investors that they can sell the debt at any time, and raise the ultimate cost of default. In other words, they signal commitment to repay and relax it at the same time.⁷⁰

The effectiveness of labeling is partly a function of social control. At one extreme a despot, who can make its subjects buy and hold its debt (or any other), makes it domestically "safe" at the stroke of a pen – even if no one but its subjects would use it. This raises the specter of distortion, or "financial repression."⁷¹ At the other extreme, when governments have incomplete control over their debt markets, their debt might become more sensitive to private safety labels, such as credit ratings. Private labels can present a challenge for monetary authorities using freely traded

⁶⁹ For banks, see National Bank Act, Sec. 5159. See, e.g., David M. Gische, "The New York City Banks and the Development of the National Banking System 1860–1870," 23 AM. J. LEGAL HIST. 21, 38–9 (1979). For nonbank financial institutions, see "National Association of Insurance Commissioners," *U.S. Government-Related and Foreign Government Debt Holdings Within the U.S. Insurance Industry* (5/9/13), www.naic.org/capital_markets_archive_index.htm ("EU-based insurers are not required to hold any capital to support their holdings of any sovereign debt issued by the 27 countries in the European Economic Area, regardless of the creditworthiness of the country issuing the debt."); U.S. Securities and Exchange Commission (SEC), *Money Market Fund Reform; Amendments to Form PF*, 79 F.R. 47736.

⁷⁰ Desan *forthcoming* 2015; cf. Pistor 2013.

⁷¹ MacKinnon 1973; Shaw 1973.

government debt as a policy tool. For example, ratings, downgrades, and credit insurance triggers for some euro area government debt threatened to undermine the efforts of the European Central Bank (ECB) to ease monetary conditions in parts of the currency union; they also contradicted public safety labels, such as the debt's eligibility as collateral in central bank lending and as an instrument of monetary policy.

Government debt represents a direct, express pledge of public credit. It also benefits from more subtle and indirect guarantees. For example, when the debt is denominated in the sovereign's own currency, the central bank can print money to repay the debt, even at the risk of diluting its value. As the preceding discussion of safety labels illustrates, governments can also guarantee a measure of liquidity by regulation. Thus risk-free treatment and safe asset status are serviceable approximations for domestic government debt. Making foreign government debt safe is far more difficult.

When a foreign government defaults, investors have limited recourse unless their own governments step in and substitute domestic safe assets (money, public debt) for the failed foreign ones. In a monetary union such as the Euro area, financial integration policies can translate into indirect backing of one sovereign's debt by another, in tension with express treaty commitments.⁷² For example, extending the risk-free label to all member government debt supports financial integration and monetary policy transmission by encouraging firms across the union to buy the debts of all member governments on the same terms. However, when a member state defaults, the others may have to choose between bailing out the sovereign and bailing out their own banks – or do both.

⁷² European treaties enshrined commitments to financial integration and against both debt mutualization (bailouts) and monetary financing of government debt. See *Consolidated version of the Treaty on the Functioning of the European Union*, at Title VIII: Economic and Monetary Policy. ECB intervention in government debt markets was framed as monetary policy and liquidity support, but was widely interpreted as central bank backing for government debt, which in turn threatened the ECB's credibility. See e.g., Irwin 2013. Governments in and outside monetary unions may have a strong interest in guaranteeing one another's debts to limit damage to trade and broader economic activity (Bulow and Rogoff 1988).

Euro-area government debt is a useful case study because going into the crisis it was widely perceived as part of the safe asset core, and used with little differentiation among the debt of member states.⁷³ It was labeled zero-risk as part of the political design; as such, it successfully promoted financial integration.⁷⁴ However, the framework for making all sovereign debt in the Euro area equally safe, and for guaranteeing it with common fiscal resources, turned out to be inadequate. For ECB President Jean-Claude Trichet, the crisis ended a unique “privilege,” where “the signature of the advanced economies ... was untouchable – in that sense, there is no more risk-free asset. The investors and savers the world over are looking at every signature on the basis of its fundamentals.”⁷⁵ Of course there never had been a risk-free asset, but rather a political project enshrined in law and institutions. Trichet, his colleagues, and successors stretched the ECB’s authority in the name of the project. However, the ECB’s capacity to label and backstop the safety of its policy instruments exceeded its capacity to make them fundamentally creditworthy. Its economic policy mandate, like that of most central banks, is limited by law and politics.⁷⁶

⁷³ See, e.g., IMF 2012 at 86–7 (stating that “prior to the [Eurozone] crisis, there was little price differentiation across assets of varied quality [of different euro area sovereign debt]” and “[a]fter the crisis, the differentiation in the perceived safety of various asset classes increased markedly.”).

⁷⁴ “[M]ost importantly, the member states of the European Community are firmly committed to the principle that all claims on banks, central governments and the official sector within European Community countries should be treated in the same way.” Basel Committee on Banking Regulations and Supervisory Practices, International Convergence of Capital Measurement and Capital Standards (1988) at 34, available at www.bis.org/publ/bcbsc111.pdf?noframes=1 [hereinafter Basel I] (allowing banks to assign a 0% risk weight to exposures to OECD member countries); Parliament and Council Directive 2006/49/EC. On the Capital Adequacy of Investment Firms and Credit Institutions (Recast), 2006 O.J. (I. 177) 201 (“CRD II”); National Bank Act, 12 U.S.C. § 24 (Seventh) (treating certain types of obligations as risk-free).

⁷⁵ UBS Center, *Jean-Claude Trichet: “There is no more risk-free asset”* (Published on December 18, 2012), www.youtube.com/watch?v=CS9EvBZ_UOc.

⁷⁶ The ECB has sought to impose economic policy conditionality on its lending, but has done so indirectly and behind the scenes for the most part. See e.g., ECB, Press Release – “Technical features of Outright Monetary Transactions” (Sept. 2012), www.ecb.europa.eu/press/pr/date/2012/html/pr120906_1.en.html (“A necessary condition for Outright Monetary Transactions is strict and effective conditionality attached to an appropriate European Financial Stability Facility/European Stability Mechanism (EFSF/ESM) programme.”).

B Bank Debt

Bank debt is the simplest and most common safe asset after government debt; at \$40 trillion, it is also comparable in volume.⁷⁷ Although they have not always done so, commercial banks today perform multiple functions simultaneously.⁷⁸ They pool popular savings, allocate credit, operate payment systems, issue money in the form of demand deposits, and transmit government monetary policy. In the process, they transform long-term illiquid assets (loans) into extremely short-term liabilities (demand deposits), and, at least in theory, act as repositories of investment information. Two of these functions require bank debt to have safe asset characteristics: to pool savings, bank debt must be a safe store of value; to serve as money, bank debt must be liquid, or usable at face value in transactions. These safety features are achieved with a mix of contractual and regulatory tools.

Two categories of bank liabilities are generally included in safe asset counts: insured retail deposits and other unsubordinated debt, often referred to as wholesale funding. The safety of retail deposits is typically framed as a consumer protection concern, as well as a matter of financial stability given the propensity of depositors to panic and withdraw deposits. The primary constituents of the safety measures are retail depositors, ordinary people with small amounts of savings and a stream of small-scale transactional needs. The safety of wholesale deposits is first and foremost a financial stability concern; the constituents are large firms, financial institutions, and local governments. However, significant losses by institutional depositors have knock-on effects on the real economy and the government fisc and safety net.

⁷⁷ IMF 2012.

⁷⁸ Proposals to disentangle some of these functions are resurgent. See e.g., Wolf 2014 and Levitin (forthcoming).

In the first instance, all bank deposits are made safe by contract, when banks promise repayment on demand and at par. The maturity mismatch on bank balance sheets detracts from the credibility of this promise, as do the banks' fractional reserve holdings and highly leveraged capital structure. Individual banks must also contend with cyclical dynamics in credit markets, cognitive biases, and collective action problems, which prompt them to take excessive risks and lever up in good times and retrench after crises.⁷⁹

Regulation tries to address these vulnerabilities directly by policing the credit quality and composition of bank assets and reserve levels, mandating minimum levels of equity and subordinated debt, and shielding banks from other parts of the financial system. Requiring banks to hold specified assets has the dual effect of making bank debt safer, and labeling the debt of other issuers as safe (or at least safe enough to serve as ingredients of bank safety). Regulation thus becomes an exercise in portfolio construction, turning banks into "safety multipliers," for example, producing safe private assets (bank debt) from a kernel of public debt.⁸⁰ Structural measures, such as affiliation and transaction restrictions, try to insulate banks from risk elsewhere in the financial system. Marking the boundary between banks and other firms reflects recognition of banks' inherent fragility and social value, but also defines part of the safe asset universe.⁸¹

⁷⁹ Gerding 2013.

⁸⁰ Weymuller 2013.

⁸¹ See, e.g., "Board of Governors of the Federal Reserve System et al, Agencies Issue Final Rules Implementing the Volcker Rule" (December 10, 2013), www.federalreserve.gov/newsevents/press/bcreg/20131210a.htm; U.K. "Independent Commission on Banking, Final Report Recommendations" (September 2011) ("Vickers Report"), available at webarchive.nationalarchives.gov.uk/20131003105424/https://hmt-sanctions.s3.amazonaws.com/ICB%20final%20report/ICB%2520Final%2520Report%5B1%5D.pdf; Liikanen et al., "High-Level Expert Group on Reforming the Structure of the EU Banking Sector" (October 2012) ("Liikanen Report"), available at http://ec.europa.eu/internal_market/bank/docs/high-level_expert_group/report_en.pdf. Structural separation is also used to protect claims by contract and regulation outside banking, in, among other areas, asset securitization (Gelpern and Levitin 2009) and investment fund regulation (Morley 2014).

Efforts to engineer banks as safe issuers and to insulate them from outside risk are inevitably incomplete. Both private ordering and regulation can get the bank safety mix badly wrong. If banks can shift the costs of their risk taking onto the public ex post, they will take too much risk, so that their debt would become unsafe absent public intervention.⁸² On the other hand, regulators might have perverse incentives of their own from time inconsistency and agency problems, including regulatory capture.⁸³ When depositors continue to use bank debt as if it were safe despite the fact that it is not made safe, it raises the pressure for intervention in crisis.

In addition to making banks into safer issuers, regulation tries to make deposits themselves safer with special resolution regimes and payment priorities. Dedicated legal regimes for bank insolvency are designed to work fast – within days and weeks, not months and years. A growing number of resolution regimes provide for depositor preference, which can extend beyond insured deposits, giving each depositor a senior claim in distribution.⁸⁴ For insured deposits, seniority matters less because they are paid from the insurance fund or the state backstop; the guarantor then steps into the depositor's shoes. For uninsured deposits, seniority directly improves the likelihood and size of recovery.⁸⁵

Bank debt is labeled safe when it is assigned low-risk weights, usually just below government debt, in capital adequacy regulation. This encourages regulated firms and other investors to buy bank debt. In a less tangible way, bank licensing, eligibility for insurance, and central bank liquidity support all convey the institutions' public importance, a level of safety and oversight, and a

⁸² Admati and Hellwig 2012.

⁸³ Gerding 2013.

⁸⁴ See, e.g., U.K. Parliament, *Financial Services (Banking Reform) Act 2013*, <http://services.parliament.uk/bills/2013-14/financialservicesbankingreform.html> (depositor preference in U.K.); Council of the European Union, *Council Agrees Position on Bank Resolution* (June 27, 2013), www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ecofin/137627.pdf.

⁸⁵ Federal Deposit Insurance Corporation, *Resolution of Systemically Important Financial Institutions: The Single Point of Entry Strategy*, 78 F.R. 243 (December 2013).

likelihood of public rescue in crisis. Some observers have suggested that designations of systemic importance – systemically important financial institutions (SIFIs), global systemically important banks (G-SIBs), and the like – promise public backing in distress. Others argue that enhanced prudential oversight that accompanies systemic designations raises the cost of doing business for the designated firms, and may either make them less competitive and therefore less safe, or limit the volume of safe debt they can issue.⁸⁶

The safety of bank debt is guaranteed by the state through deposit insurance, liquidity support from the central bank as lender of last resort (LOLR), and ad hoc credit and liquidity support in crises. Deposit insurance may be the best-known example of public backing for a safe asset. It protects both depositors and banks. Government guarantees of repayment at par make deposits “default-free” in the eyes of the public and discourage runs.⁸⁷ The bank’s promise of redemption on demand and the government’s guarantee of that promise make deposits money-like.

Public backing for deposits can be direct (available as a first resort) or contingent (available only after exhausting some combination of bank equity, junior debt, affiliate guarantees, and an industry-financed insurance fund). It is at least partly explicit, specified up front in legislation and regulation. However, there is also a pattern of extending deposit insurance coverage ex post, in crisis, to more claims and claimants.⁸⁸ At the other extreme, some governments cannot afford to honor the original guarantee, and are forced to curtail coverage or choose among the claimants. Iceland and Cyprus are prominent recent examples.

⁸⁶ See, e.g., IMF, “How Big Is the Implicit Subsidy for Banks Considered Too Important to Fail?” (April 2014), www.imf.org/external/pubs/FT/GFSR/2014/01/pdf/c3.pdf.

⁸⁷ Ricks 2012.

⁸⁸ Gelpern 2009.

The ubiquitous pejorative “bailouts” is often used to describe government payments on implicit credit guarantees. Big banks, national champion manufacturers, political subdivisions, and other entities whose failure would be macroeconomically and politically intolerable⁸⁹ are the usual beneficiaries. Crisis rescues make the existence of flexible “bailout” authority apparent to the public, and shape expectations for the future.⁹⁰ They make beneficiaries’ debt look safer going forward.

In addition to credit guarantees, central banks supply emergency liquidity to firms and, increasingly, asset markets. Although the general parameters of LOLR authority tend to be specified in advance by statute and regulation, the availability of emergency liquidity for any particular firm or asset market is uncertain: at least in theory, it depends on the authorities’ determination that the firm is solvent.⁹¹ Like deposit insurance, LOLR is designed to stem panics; it must be publicly known and trusted in advance. Unlike deposit insurance, which is paid out to the seniormost creditors of insolvent banks, LOLR support benefits the illiquid firms themselves. In theory, LOLR lends freely, against good collateral, at a high rate of interest.⁹² In practice, the collateral and price constraints appear malleable.⁹³ As a result, the line between liquidity support and credit guarantees is fuzzy.

Liquidity and solvency support for banks presents three complications for purposes of our discussion. First, LOLR operations support two kinds of assets simultaneously: all claims on eligible institutions (for example, bank debt) and the assets accepted as collateral.⁹⁴ The decision to lend thus involves, at a minimum, two distinct policy choices affecting asset safety.

⁸⁹ Levitin 2011.

⁹⁰ Financial Crisis Inquiry Commission Report 2011; Wilmarth 2010; Wilmarth 2011; Davidoff and Zaring 2009.

⁹¹ Cecchetti 2007.

⁹² Bagehot 1873.

⁹³ For example, Cecchetti and Disyatat 2010; Nakaso 2001.

⁹⁴ In effect, the LOLR commits to hold eligible assets on its books until they recover in value, or to absorb the losses – taking on both liquidity and credit risk. LOLR is thus both a lender and a buyer of last resort. Cf. Mehrling 2010.

Second, the LOLR may not be able to ensure the liquidity of assets denominated in a currency it does not issue. For example, the Central Bank of Korea needs access to Japanese Yen and U.S. dollars to guarantee the liquidity of Korean banks' yen and dollar liabilities. Only a few governments and central banks can issue claims usable as safe assets beyond their borders.⁹⁵ To be credible, a LOLR that does not control the currency of the claims it must back makes institutional arrangements to overcome the liquidity constraint. These can take the form of a full-blown monetary union, as in the Euro area, or intergovernmental arrangements, such as currency swap lines.⁹⁶

Third, when the public credit guarantee is combined with a high level of public debt on bank balance sheets, the safety measures can become a channel for continual risk transmission or “the doom loop.”⁹⁷ For example, when a fiscally strapped government rescues troubled banks, its debt on the balance sheet of the banks becomes riskier, and undermines confidence in the banks. In some cases, the mere perception that banks are a contingent liability of the sovereign can have a negative effect on both sovereign and bank finances. Where the size of the banking system exceeds the size of the domestic economy, a sovereign's capacity to back the banks falls in doubt. For bank and sovereign liabilities to remain safe, domestic guarantees must be reinforced from other sources, such as foreign governments.

⁹⁵ cf. Mehrling 2013.

⁹⁶ See, e.g., “Federal Reserve, Central Bank Liquidity Swap Lines” (Last update: August 2, 2013), www.federalreserve.gov/newsevents/reform_swaplines.htm; ASEAN+3 Macroeconomic Research Office, Chiang Mai Initiative, www.amro-asia.org/documents/; Chalongphob Sussangkarn, “The Chiang Mai Initiative Multilateralization: Origin, Development and Outlook,” *Asian Development Bank Institute Working Paper Series No. 230* (July 2010), <http://www.adbi.org/files/2010.07.13.wp230.chiang.mai.initiative.multilateralisation.pdf>.

⁹⁷ For example, Obstfeld 2013. See Peter Coy, “A Way to Break Out of Europe's ‘Doom Loop’,” *BusinessWeek* (June 2012), www.businessweek.com/articles/2012-06-26/a-way-to-break-out-of-europes-doom-loop; Silvia Merler and Jean Pisani-Ferri, “Hazardous tango: sovereign-bank interdependence and financial stability in the euro area Bruegel” (April 2012), www.bruegel.org/publications/publication-detail/publication/725-hazardous-tango-sovereign-bank-interdependence-and-financial-stability-in-the-euro-area/.

C Repos

Repos, or repurchase agreements, are the functional equivalent of a very short-term secured loan. In a repo transaction, the borrower sells a security to the lender and agrees to repurchase it for a higher price at a future date, typically overnight. The sale price is the loan principal. The difference between the sale and repurchase prices reflects implicit interest on the loan. The security being sold functions as collateral. The borrower typically sells it to the lender for less than its market price, which makes the loan effectively overcollateralized at the outset. The amount of overcollateralization, or the difference between the sale price and the market price of the security, is referred to as a “haircut.” Lenders demand a larger haircut (more collateral) when they worry about the risk of repayment or a decline in the value of collateral. In bilateral repos, borrowers in need of short-term funding deal directly with short-term lenders. In triparty repos, agents intermediate between borrowers and lenders; they stand ready to manage and substitute collateral and, in some cases, to provide intraday financing. As of January 2014, the U.S. repo market stood at just over \$3 trillion, with triparty and bilateral repos each representing approximately \$1.4 trillion.⁹⁸ In the U.S. market, most bilateral repos use U.S. Treasury debt as collateral; most triparty repos use other assets.

Repos thus function as synthetic recreations of bank loans for the seller–borrower – or bank deposits for the buyer–lender. Owing to their short maturities and their use as cash-like “transactional reserves,”⁹⁹ policy commentary has focused on the deposit analogy. When they

⁹⁸ As of January 2014, the total U.S. repo market was estimated at \$1,407 billion for tri-party repo, \$1,394 billion for bilateral repo, and \$306 billion GCF repo. Adam Copeland, Isaac Davis, Eric LeSueur, and Antoine Martin, *Lifting the Veil on the U.S. Bilateral Repo Market*, Liberty Street Economics (July 2014), <http://libertystreeteconomics.newyorkfed.org/2014/07/lifting-the-veil-on-the-us-bilateral-repo-market.html#.VBSAHPldWSp>. GCF repo is a trading and settlement service provided by the Depository Trust & Clearing Corporation (DTCC). DTCC, *GCF Repo Service*, www.dtcc.com/clearing-services/ficc-gov/gcf-repo.aspx.

⁹⁹ Ricks 2012.

function like deposits, repos transform longer term and less liquid assets (collateral securities) into overnight claims. As noted earlier, triparty repos also involve substantial intermediation.

Repos are made safe by contract and statute. Short maturity reduces the probability of a payment default during the term of the contract. Collateral similarly reduces the probability of default, and promises higher recovery in the event of default under the contract. Like all contracts, repos benefit from the background law that assures their enforcement and the buyer–lender’s rights in the collateral. Repos also get an extra layer of statutory protection that makes them safer than other secured loans, and allows the lender to focus on the value of the collateral to the exclusion of counterparty risk. In 1984, the U.S. Congress exempted repos from many of the key elements of the bankruptcy regime.¹⁰⁰ These exemptions meant that repo lenders were no longer subject to the automatic stay on enforcement; when a borrower filed for bankruptcy protection, the lender could keep the collateral without waiting for the bankruptcy process to unfold. Lenders could shift their focus from finding private information about their counterparties to valuing the collateral.

Bankruptcy exemptions improve the repayment prospects of repos, and reduce their “information sensitivity.”¹⁰¹ They also function as a safety label, communicating a policy view that repos were a distinct category of private contract entitled to special protections in public ordering.

The market practice of collateralizing repos with other safe assets such as highly rated government and corporate debt and asset-backed securities further reduces their information sensitivity, this time by reducing lenders’ incentives to discover private information about the collateral. Such contractual safety engineering also makes the repos’ ability to function as safe assets

¹⁰⁰ Bankruptcy Amendments and Federal Judgeship Act of 1984, Pub. L. No. 98- 353, § 391, 98 Stat. 333 (1984). In 1982, 1984, and 1990, Congress extended the exemptions to various types of derivatives contracts. Franklin R. Edwards and Edward R. Morrison, “Derivatives and the Bankruptcy Code: Why the Special Treatment?,” *Yale Journal on Regulation*, Vol. 22 pp 101–33 (2005), at 105–9.

¹⁰¹ Dang et al. 2013b.

contingent on the safety of the collateral securities. This connection between different safe asset classes turned into a transmission line for contagion in financial crisis. Deterioration in the safety of asset-backed securities that served as collateral for repos led to a freezing of the repo market, as lenders demanded larger haircuts and even safer collateral in the form of government debt, or refused to lend altogether. This “run on repo”¹⁰² proved catastrophic for financial institutions and markets that relied on repos for essential liquidity.

Repo safety is guaranteed indirectly and implicitly in normal market conditions. For example, the U.S. Federal Reserve has served as LOLR to some of the larger institutional borrowers in the repo markets.¹⁰³ The Federal Reserve also uses repos in open market operations. In doing so, it buys (accepts as collateral) Treasury securities, Agency debt, and Agency mortgage-backed securities.¹⁰⁴ The eligibility of these instruments as collateral for the Federal Reserve’s repo operations supports their liquidity, and enhances their utility as collateral in the broader repo market. While the Federal Reserve did not formally pledge to support the repo market, past practice might reasonably lead market participants to expect such support. Financial crisis response bolstered such expectations.

Beginning in 2007, the Federal Reserve’s backing for the repo markets became more explicit, extensive, and creative. Large financial institutions faced skyrocketing costs when attempting to borrow in the repo markets using Agency debt or mortgage-backed securities. Lenders demanded ever-deeper “haircuts,” while spreads between interest rates on repos collateralized with Agency mortgage-backed securities and those collateralized with U.S. Treasury debt widened dramatically. Large financial institutions that financed themselves in the repo market faced liquidity and solvency

¹⁰² See, e.g., Adam Copeland, Antoine Martin and Michael Walker, *Repo Runs: Evidence from the Tri-Party Repo Market*, Federal Reserve Bank of New York Staff Reports Staff Report No. 506 (July 2011 Revised August 2014), http://www.newyorkfed.org/research/staff_reports/sr506.pdf.

¹⁰³ Madigan and Nelson 2002.

¹⁰⁴ Fleming, Hrungr, and Keane 2010.

threats. In response, the Federal Reserve invoked emergency authority dormant since the Great Depression to establish lending and guarantee facilities for frozen financial markets.¹⁰⁵ One of the facilities was expressly targeted at the repo markets. Under the Term Securities Lending Facility (TSLF), the Federal Reserve loaned U.S. Treasury securities to large financial institutions, secured by Agency debt and Agency mortgage-backed securities. The Federal Reserve effectively swapped the dealers' illiquid assets for government debt, which firms could then pledge as collateral to reduce their cost of borrowing in the repo markets. The program appears to have revived the repo markets, narrowing interest rate spreads between repos collateralized with U.S. treasuries and Agency securities.¹⁰⁶

D. Asset-Backed Securities

Asset-backed securities (ABS) repackage payment streams from a pool of underlying obligations, such as home mortgages, small business loans, or credit card debts. Although structures differ depending on the market and the asset being securitized, the basic framework entails an originator (for example, a bank) transferring debt contracts to a special-purpose entity, which issues securities to investors, but has no other liabilities.¹⁰⁷ The originator gets cash up front, while the investors receive payment flows from the underlying contracts and secured by them. U.S. mortgage-backed securities (MBS) are the largest subspecies. At the end of 2013, outstanding mortgage-related securities in the United States stood at \$8.8 trillion, down from \$9.4 trillion in 2007. Of the total, Agency MBS represented \$7.1 trillion, compared to \$1.7 trillion in private-label (non-Agency) MBS

¹⁰⁵ Johnson 2011.

¹⁰⁶ Fleming, Hruno, and Keane 2010.

¹⁰⁷ Arner, Lejot and Schou-Zibell 2008.

– a stark difference from 2007, when Agency MBS stood at \$5.8 trillion and private-label MBS at \$3.6 trillion. Most of the total represents residential mortgage financing; commercial MBS were \$626 billion in 2013.¹⁰⁸

Asset-backed commercial paper (ABCP) is another variation on ABS that featured prominently in the crisis. ABCP programs repackage diverse assets, such as manufacturers' trade receivables, auto loans, and credit card debt, into securities that typically mature in less than six months.¹⁰⁹ Like banking, ABCP effects credit intermediation and maturity transformation. ABCP is an important source of short-term financing for U.S. manufacturing and service firms, and a favored investment of money market mutual funds.

Among the various private and public objectives advanced by different forms of securitization, one stands out for purposes of our discussion: the transformation of illiquid assets of mixed credit quality, such as mortgages and car loans, into tradable securities with superior prospects of repayment. These securities were then used as ingredients in another round (or rounds) of securitization, to produce another generation (or generations) of safe assets.¹¹⁰

Like repos, ABS can be made safe by contract, statute, and regulation. For example, private-label MBS contracts in the United States rearrange cash flows from pooled mortgages into different classes of securities (tranches) of different repayment priority.¹¹¹ MBS and ABCP issuers hold assets in excess of their repayment obligations, and obtain various forms of credit and liquidity insurance.

¹⁰⁸ SIFMA, US Mortgage-Related Issuance and Outstanding (xls) (Last Updated 9/08/2014), www.sifma.org/research/statistics.aspx.

¹⁰⁹ For background on asset-backed commercial paper, see generally Covitz, Liang and Suarez 2013; Wells Fargo, A Primer on Asset-Backed Commercial Paper (2014), www.wellsfargoadvantagefunds.com/assets/pdf/fmg/icm/primer_abcp.pdf; Blackrock, Understanding ABCP (2013), www.blackrock.com/cash/literature/whitepaper/understanding-abcp-a-primer.pdf.

¹¹⁰ Schwarcz 1994, Gelpert and Levitin 2009.

¹¹¹ cf. Gorton and Penacchi 1990.

Tiered capital structures, credit and liquidity support (as seen in banks¹¹²), short maturities (as seen in banks and repos), overcollateralization (as seen in repos), along with passive management and restructuring constraints, come together in bundles of contracts that turn middling IOUs into apparently safe and liquid debt.¹¹³

Statutory and regulatory intervention complements contractual safety features. For example, like repos, ABS are designed to escape debt write-offs in bankruptcy. Unlike repos, they are not exempt by statute, but are allowed to work around it to achieve “bankruptcy remoteness.” ABS issuers in the United States are typically organized as trusts, a form that makes them ineligible to file for bankruptcy.¹¹⁴ The assets underlying ABS are sold, not pledged, by the originator; “true sale” is intended to minimize the risk of implicating the assets in the originator’s bankruptcy.

Risk retention requirements seek to improve the repayment prospects of ABS by aligning sponsor and investor incentives. In the United States and the European Union, financial reform required sponsors to retain five per cent of the risk in their ABS, subject to exemptions for certain categories of underlying assets, to encourage them to investigate and monitor asset quality.¹¹⁵

Some ABS are made safer with minimum underwriting standards, which improve the quality of the securitized asset pools. Such standards have long been imposed as a condition of Fannie Mae

¹¹² In banks, credit and liquidity support is provided by the public sector; the capital structure is substantially specified by regulation.

¹¹³ Cf. Bratton and Levitin 2013.

¹¹⁴ 11 USC §109(a) (“Who may be a debtor”) (2006); “In Re Secured Equipment Trust of Eastern Air Lines,” 38 F.3d 86 (2nd Cir. 1994).

¹¹⁵ EBA, Final Draft Regulatory Technical Standards, EBA/RTS/2013/12 and EBA/ITS/2013/08 (17 December 2013), available at [www.eba.europa.eu/documents/10180/529248/EBA-RTS-2013-12+and+EBA-ITS-2013-08+\(Securitisaton+Retention+Rules\).pdf](http://www.eba.europa.eu/documents/10180/529248/EBA-RTS-2013-12+and+EBA-ITS-2013-08+(Securitisaton+Retention+Rules).pdf); Comptroller of the Currency et al., *Credit Risk Retention* (Proposed Rule), Federal Register Vol. 76, No. 83 at 24090 (April 29, 2011).

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and Freddie Mac backing; more recently, they were introduced as an alternative to risk retention under the Dodd-Frank Act.¹¹⁶

ABS are labeled safe in several ways, again with a mix of private and public tools. In the run-up to crisis, these contract bundles were designed to the specifications of private credit rating agencies. Once labeled with a rating, they could be sold to investors with varying risk appetites, including risk-averse banks, insurance firms, pension and money market funds, which bought the seniormost tranches. The resulting liquidity made ABS more attractive as repo collateral and as hedging tools. They could also be repackaged into new tranches and rated ABS. After the bubble burst, industry leaders criticized the “dilution” in ratings in the run up to the crisis: by January 2008, there were 64,000 AAA-rated structured finance instruments in the world, and only twelve AAA-rated companies.¹¹⁷

Regulatory labeling of ABS takes the form of listing them as permitted investments for regulated firms.¹¹⁸ By the 1990s in the United States, changes in statutes, regulations, and regulatory interpretations first enabled federally regulated banks to buy Agency MBS, and then clarified that they could also hold investment-grade private label ABS.¹¹⁹ Regulated firms in and outside the

¹¹⁶ See, or example, 12 CFR § 1026.43 “Minimum standards for transactions secured by a dwelling.” A mortgage that meets the “qualified mortgage” requirements of the Consumer Financial Protection Bureau is exempt from the proposed Dodd-Frank risk retention requirement (“skin in the game”) for securitization. See id. (defining “qualified mortgage”); Office of the Comptroller of the Currency et al., Credit Risk Retention; Proposed Rule, 78 F.R. 57928 (September 20, 2013). See also North and Buckley 2012 (describing securitization reform under the Dodd-Frank Act).

¹¹⁷ Lloyd Blankfein, “Do not destroy the essential catalyst of risk,” *Financial Times* (February 8, 2009), www.ft.com/intl/cms/s/0/0a0f1132-f600-11dd-a9ed-0000779fd2ac.html.

¹¹⁸ See, e.g., National Association of Insurance Commissioners, *Analysis of Insurance Industry Investment Portfolio Asset Mixes* (2011), www.naic.org/capital_markets_archive/110819.htm. In 2007, a substantial proportion of all Agency securities and Agency MBS were in the hands of regulated financial institutions or local government agencies. Board of Governors of the Federal Reserve System, Flow of Funds Accounts of the United States, Flows and Outstandings Third Quarter 2007 p. 88 (Dec. 6, 2007). See also Acharya, Kulkarni, and Richardson 2011 (citing 2008 report on regulated firms holding investment grade collateralized debt obligations).

¹¹⁹ The Secondary Mortgage Market Enhancement Act of 1984 (SMEEA) (Pub. L. No. 98-440, § 105(c), 98 Stat. 1691) and the Riegle Community Development and Regulatory Improvement Act of 1994 (Pub. L. No. 103-325, 108 Stat. 2160) both amended 12 U.S.C. §24 (Seventh) to enable or expand the capacity of national banks to purchase asset-backed securities. (Fein 2010) For an analysis of SMEEA provisions on bank purchases of mortgage-backed securities, see Abelman 1985. See generally McCoy and Renuart 2008, Wilmarth 2009.

United States that were limited to investment-grade securities relied on credit rating agencies to define eligible ABS tranches.

Policymakers also labeled ABS safe by assigning lower risk weights to investment-grade tranches for purposes of capital adequacy. For example, Agency RMBS in the United States have long carried a risk weight of 20 percent, one-fifth of the risk assigned to other loans to private borrowers. Regulated firms had to hold less equity against these investments because they were deemed safe by law. This encouraged a measure of herding into ABS.¹²⁰ It also encouraged regulatory arbitrage: banks created and bought securities to reduce their regulatory capital requirements, rather than to transfer credit risk.¹²¹

As noted earlier in this section, most MBS in the United States are backed by housing finance agencies, which absorb the credit risk of the mortgages they securitize. Investors in Agency MBS retain interest rate risk. MBS securitized through government-owned Ginnie Mae had a measure of express government backing ex ante. Fannie Mae and Freddie Mac had implicit U.S. government guarantees, which became explicit ex post in crisis.

When higher-than-expected mortgage default rates exposed the models underlying private-label MBS as flawed, market participants lost confidence in a wide range of securitized instruments.¹²² Some regulated firms had to sell ABS that had lost their investment-grade rating quickly, and at a loss. Deteriorating credit quality and lost liquidity reinforced each other: even the seniormost ABS tranches could no longer be bought and sold “no questions asked.” The critical role

¹²⁰ Viral Acharya and others argue that large complex financial institutions herded into tail-risk, creating and buying investment-grade asset-backed securities for regulatory capital arbitrage, driven by government guarantees (Acharya, Cooley, Richardson, and Walter 2010, Richardson, Ronen and Subrahmanyam 2011, Gerding 2013 at 322–6).

¹²¹ *Id.*

¹²² For data on the scope of the mortgage-backed securities crisis that examines credit default swap indexes and ratings downgrade information, see Brunnermeier 2009. Brunnermeier traces how the crisis spread from mortgage-backed securities to other structured products, such as asset-backed commercial paper.

of MBS in housing finance, and the pervasive use of ABS in banks and the money markets, led the U.S. government to step in with ex post guarantees. The Troubled Asset Relief Program (TARP) was initially proposed as a way to buy distressed ABS from financial firms, a form of credit support; however, it was not used that way.¹²³ Instead, the U.S. Federal Reserve used its emergency authority to launch more facilities styled as liquidity support. Two of the facilities stood ready to lend to banks against ABS and ABCP.¹²⁴ Another facility, already mentioned in the context of repo guarantees, loaned U.S. Treasury securities to primary dealers in exchange for illiquid Agency-backed MBS and other repo collateral that had lost its safety.¹²⁵ In addition, the Federal Reserve used Agency MBS in interest rate-setting open market operations, as part of its monetary stimulus to the economy in crisis.¹²⁶ By March 31, 2010, the Federal Reserve held \$1.06 trillion in Agency mortgage-backed securities.¹²⁷

E.....Four Safe Assets Summarized

In each of the four case studies in this part, financial contracts become safe assets with the help of three distinct but overlapping sets of tools. They are *made* less risky with a mix of contract terms, issuer balance sheet engineering, underwriting standards, and repayment priorities. They are

¹²³ The Troubled Asset Relief Program (TARP) was created by the Emergency Economic Stabilization Act, P.L. 110–343, 12 U.S.C. 5311 et seq. For use of TARP funding, see CRS, Troubled Asset Relief Program (TARP): Implementation and Status, R41427 (June 27, 2013); U.S. Treasury, TARP Programs, www.treasury.gov/initiatives/financial-stability/TARP-Programs/Pages/default.aspx.

¹²⁴ Term Asset-Backed Securities Loan Facility (TALF) www.federalreserve.gov/newsevents/reform_talf.htm; Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) www.federalreserve.gov/newsevents/reform_amlf.htm.

¹²⁵ Term Securities Lending Facility (TSLF) and TSLF Options Program (TOP) www.federalreserve.gov/newsevents/reform_tslf.htm.

¹²⁶ Agency Mortgage-Backed Securities (MBS) Purchase Program www.federalreserve.gov/newsevents/reform_mbs.htm.

¹²⁷ Johnson 2011.

labeled safe by regulation and credit rating agencies (private information intermediaries). Issuers are *guaranteed* through deposit insurance schemes, central bank liquidity support, and emergency rescues.

In addition, assets may benefit from implicit public backing when they are used in central bank policy operations. Our examples also reaffirm that safe asset construction is a public–private undertaking.¹²⁸ Table 1 illustrates.

Table 1:
The Safety Toolkit, Public and *Private*

	Made Safe	Labeled Safe	Guaranteed Safe
Issuer	<ul style="list-style-type: none"> • Capital adequacy and other loss-absorbency requirements • Activity and investment restrictions • Affiliation restrictions • Risk retention requirements • <i>Tiered liabilities</i> • <i>Portfolio construction</i> • <i>Negative covenants</i> • <i>Passive management</i> 	<ul style="list-style-type: none"> • Licensing • Primary dealer designation • <i>Credit ratings</i> 	<ul style="list-style-type: none"> • LOLR liquidity • Ad-hoc crisis intervention • <i>Affiliate guarantees (ex ante and ex post)</i> • <i>Insurance and other credit enhancement</i>
Asset	<ul style="list-style-type: none"> • Margin, collateral rules • Bankruptcy exemptions • Underwriting standards/Ability to repay • Shadow NAV • <i>Short maturity</i> • <i>Collateral</i> 	<ul style="list-style-type: none"> • Permitted investments and exemptions • Assigned risk weights • Stable NAV accounting • <i>Credit ratings</i> • <i>CDS trigger</i> 	<ul style="list-style-type: none"> • Deposit insurance • Central bank collateral policies • Monetary policy instrument • Ad-hoc crisis intervention • <i>Collateral</i> • <i>Insurance and other credit enhancement</i> • <i>Ex post guarantees</i>

Four additional implications follow from the case studies. First, public and private ordering do not always appear in the same sequence in the safe asset market. For example, market practice has led the development of some safe asset classes, such as ABCP, outpacing the law’s recognition

¹²⁸ Cf. Pistor 2013.

of those assets as safe. Similarly, when the U.S. congress enacted bankruptcy exemptions for repos in 1984, it responded to market participants' widespread use of this instrument as if their design had lowered counterparty risk. Yet markets also react to legal reforms that label assets as safe, make those assets safer, or guarantee them. After congress exempted repos from key provisions of the bankruptcy code, repo markets enjoyed significant growth.¹²⁹

Second, safe assets beget safe assets – but safety pyramids can unravel. Economists make this observation about privately constructed safe assets. Because such assets come about through asset repackaging, liability tiering, and contractual linkages, their capacity to transmit asset and counterparty risk appears intuitive. However, even with the basic building blocks of the safe asset universe, government and bank debt, mechanisms that “crowd in” safety in good times can beget vicious cycles in bad times.

What distinguishes some governments from all other safe asset producers and backers is their ability to act countercyclically when private issuers cannot. Not all governments have this ability. Some cannot credibly make, label, or guarantee safety for lack of fiscal, political, or institutional capacity, and must rely on external support or look outside for safe assets. Unlike the asset scarcity literature, this observation is by no means directed at emerging market economies: the crisis in Europe has demonstrated its broad applicability.

Third, in the process of safe asset construction, the law creates continuities and discontinuities among asset classes that might not otherwise exist. For example, exempting repos from the bankruptcy process makes them more like bank deposits, enhancing their liquidity and reducing their information sensitivity – but it creates a gap between repos and functionally equivalent secured loans. Investors might reasonably respond to the exemption by shifting away

¹²⁹ Acharya and Öncü 2012 at 330.

from bank deposits and secured loans into repos. Labeling similarly divides safe assets from all others: regulations permit banks and insurance companies to hold AAA-rated asset-backed securities, but not tranches in the same issuance one notch below investment grade. This creates potential for cliff effects. For example, regulated financial firms were forced to sell downgraded ABS in apparent fire sales in the crisis. Discontinuities and cliff effects can generate cascading losses of safety for interlinked safe assets, for example repos with ABS as collateral, money market funds invested in ABCP, or banks invested in the distressed debt of a sovereign.

Fourth, safe asset construction is fraught with distributional consequences. The process of selecting, labeling, reinforcing, and guaranteeing safe assets privileges some issuers, users, and uses over others. Guarantees shift public resources away from other uses to support safe assets; bankruptcy exemptions take from the debtor and nonexempt creditors; while portfolio mandates and regulatory labels redirect investment, lowering the cost of funds for some economic actors and raising it for others. Some researchers have attempted to quantify the subsidies embedded in safe asset labels, but the work is only starting (see e.g., Korte and Steffen 2014).

IV Policy Implications and a Research Agenda

This chapter is part of a larger project on legal tools in macroprudential policy. We rethink the concept of “safe assets,” which has attracted policy and academic attention among economists over the past five years. The law is conspicuously absent in the prevailing accounts of safe assets. Our objective has been to identify the institutional mechanisms by which safe assets emerge, become systemically important, and lose their safety.

In this chapter, we consider four case studies – government debt, bank debt, repos, and asset-backed securities – in an effort to tease out common features and policy tools that shape the safe asset universe. In each case, the law plays three distinct roles. First, it seeks to reduce the risks embedded in the asset. This is hard, uncertain, and time-consuming work. *Making* assets safer requires constant monitoring and supervision; this regulatory work is prone to agency problems that worsen at different times in the credit cycle.¹³⁰ In contrast, *labeling* assets as safe can be instantaneous. However, it is also risky for the government. Labeling by law establishes market expectations of safety, and encourages herding into the asset. If they are not backed by private contract, oversight or government guarantees, labelled assets can become unstable and vulnerable to runs. When governments *guarantee* safe assets, they may extend credit or liquidity support, or both. Like labeling, guarantees can arise on the spot. However, they are both economically and politically fraught, with public resources directly on the line. Labeling and guarantees also account for the discontinuous character of safe assets. At best, making can lead to safer assets; labeling and guarantees promise absolute safety for all practical purposes – but are not always credible.

Many questions for future research emerge from this description. First, for monitoring purposes, it is important to understand when relatively safe assets come to be treated in markets as if they were risk-free. The respective contributions of the three tools identified in this chapter, and of public and private ordering, to this market treatment remain to be investigated. The relative efficacy of the three tools and the interactions among them require further study. As part of the broader project, it is also important to establish how the three tools should work at different points in the credit cycle. Finally, it is critical not to lose sight of the implications of safe assets for social distribution. Designating financial contracts as “safe” might channel financing in their direction on a

¹³⁰ Gerding 2013.

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massive scale, while labeling and ex post rescues can entrench expectations of public support in some quarters, but not others.

We end with a paradox. Safe asset critics are right in one sense: for all its recent importance, the term covers a broad range of claims that can have little in common. Nonetheless, for as long as market participants treat some financial contracts *as if* they were safe, and do so on a large scale, they implicate financial stability and the public purse. The law enables both the production and the use of safe assets. It can hardly stay on the sidelines.

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