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**The Plight of Modern Markets: How Universal
Banking Undermines Capital Markets**

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Abstract

This paper explains the process of competitive deregulation that led both the U.S. and the U.K. to embrace universal banking and to abandon the functional separation of financial activities that had long characterized their financial systems. The paper argues that only a few rare voices in the debate over universal banking that started in the late-1970s and continued for over a decade understood what was truly at stake. The principal argument in favor of separation, then as now, was that the commercial banking system, which is supported by a government “safety net,” needs to be protected from the risks inherent in investment banking. By contrast, this paper argues that functional separation plays an important role in protecting capital markets from the banking system.

Universal banking is associated historically with thinly traded stock markets, and this paper argues that universal banking promotes an oligopoly of large dealer-banks whose interests are best served by trading on non-public over-the-counter markets. I find that such an oligopoly played a key role in the growing importance of such over-the-counter markets in the U.S. over the past few decades.

The paper then argues that the benefits of the greater liquidity that large universal banks can provide to capital markets are offset by the dangers they create when they err. Because mistakes at these large banks are often allowed to grow in size to match the size of the banks, they distort prices on financial markets and sometimes create systemic risk. Two recent examples are given: UBS and Citibank’s exposures to subprime mortgages, and J.P. Morgan Chase Bank’s “London whale” fiasco.

Finally, the paper explains that Senator Carter Glass sought passage of the Glass

Steagall Act, because he believed it was necessary to limit commercial bank participation in the margin loan market, as this activity makes possible a feedback loop between increases in the money supply and increases in asset prices, which in turn can generate an asset price bubble in capital markets. The recent crisis has led modern researchers to rediscover the relationship between margin lending, feedback loops, and asset price bubbles that was well understood by the legislators of the 1930s. The paper argues that the recent crisis closely mirrored the stock market bubble of the late 1920s and that we need a Glass-Steagall Act for the 21st century in order to protect capital markets from the banking system. *

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September 21, 2014

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Three to four decades ago a debate took place over the structure of the U.S. banking system and the outcome of this debate has in many ways shaped the current U.S. financial system. At issue in the debate was the question of whether the U.S. financial system would be better off establishing a universal banking system – in which banks perform many services in addition to taking deposits, such as underwriting securities – or whether functional separation between commercial and investment banks should be maintained. Because the Glass-Steagall Act, as it was interpreted in early decades, prohibited commercial banks from engaging in capital markets activities and prohibited investment banks from receiving demand deposits, universal banking in the U.S. could be established only by reinterpreting and then repealing the Act. The highly consolidated financial structure we have today is a consequence of the victory won by the proponents of universal banking.

This paper argues that only a few rare voices in the debate over universal banking understood what was truly at stake. The debate focused on the effects on banking of eliminating the functional separation, and asked whether investment banking activities were likely to make commercial banks too risky, and whether commercial bank-underwriters had exploited conflicts of interest in the past. This paper argues that the effect on capital markets of the integration of commercial and investment banking was an equally important issue,¹ and key questions were whether commercial bank participation in capital markets weakens markets, and whether commercial bank funding of capital market assets destabilizes capital markets. This paper finds that the experience of universal banking in the U.S. provides evidence that both of these questions may be answered in the affirmative.

For the purposes of this paper, a bank is a universal bank when it engages not only in commercial banking activities such as lending and taking deposits, but combines commercial banking activities with the full range of capital markets activities. These capital markets activities include underwriting securities issues, brokering and dealing in securities, and lending against securities as collateral. The Glass-Steagall Act

¹ When the Glass Steagall Act was passed, this question was often framed as: Should money markets be separated from capital markets? This approach is discussed, for example, in Raymond Goldsmith, *Scope and Function of the Capital Market in the American Economy*, in *THE FLOW OF CAPITAL FUNDS IN THE POSTWAR ECONOMY* 22, 30 (1965) and Ellis Tallman, *Comments on “The Promise and Performance of the Federal Reserve as a Lender of Last Resort 1914-33,”* in *THE ORIGINS, HISTORY, AND FUTURE OF THE FEDERAL RESERVE* 99, 102 (Michael Bordo & David Wheelock ed., 2013). At this time, however, banks were dealers in active secondary markets in commercial paper, so the relationship between the term “money market” and commercial banks was clear. Today it is unclear that any such money market exists. Instead of an active secondary market in short-term debt, what is called a money market today is just a venue for raising short-term funds.

placed firewalls between commercial banks and each of these three activities, whereas modern financial regulation permits commercial banks to engage in all of these activities.

Section I draws connections between this paper and the broader literature on universal banking. Section II discusses the fact that both the U.S. and English stock markets had rules that prevented commercial banks from acting as brokers or dealers, and that as a result capital markets in these two countries were partially insulated from the influence of commercial banks. This section also explains the many ways in which the rules of the stock exchange differed in the two countries.

Section III addresses in general terms how universal banking tends to undermine capital markets. First, the fact that universal banking is associated with retarded development of public securities markets is discussed and a possible explanation is given: universal banking generates markets dominated by a few very large dealers, who favor non-public over-the-counter markets. Next, the costs and benefits of large securities dealers are presented: while universal banks are more able to provide large-scale liquidity to markets, universal bank errors are often allowed to grow in scale to match the bank's size, and as a result these errors distort prices on financial markets and sometimes generate systemic risk. Finally, the instability caused by commercial bank funding of margin loans is explained: because commercial bank lending can expand the money supply and margin loans are structured to be very safe assets, margin lending by commercial banks is constrained only by the market price of the collateral and the borrowers' willingness to borrow. When borrowing is affected by either procyclical decision rules or adverse selection, the outcome is likely to be a destabilizing asset price bubble.

Section IV discusses the evolution of U.S. and U.K. markets over the course of the 20th century from markets that were insulated from the influence of commercial banks to markets that were dominated by universal banks, and the role played by competitive deregulation in that evolution. First, the article argues that a primary purpose of the Glass-Steagall Act was to protect capital markets by limiting the ability of commercial banks to provide funding for margin loans in order to prevent increases in the money supply and increases in asset prices from feeding off of each other and generating a destabilizing asset price bubble. Next, the article discusses how reform of the U.S. stock exchange eliminated the rules that protected the exchange from the influence of commercial banks, and how this triggered the growth of large dealers. Competition with these large American dealers induced dramatic reform of the London Stock Exchange which allowed the formation of British universal banks that grew even larger than the American dealers. Finally, U.S. regulators and then U.S. legislators responded to the competitive threat of

huge British commercial bank-dealers by reducing and then eliminating the remaining constraints on universal banking in the U.S.

Section V discusses some consequences of the movement to universal banking in the U.S. One of the first actions of the nascent universal banks was to join forces with dealer banks and promote the legal recognition of a vast (and vastly profitable) over-the-counter or “dark” market in derivatives. Over time effective lobbying made it possible for the universal and dealer banks to control a market in financial instruments that could simulate the return of any asset. The banks’ legal and regulatory successes entrenched their power in this non-public market – and the same banks that dominated the market in 1985 dominate the market today.

The article then discusses two errors in judgment by universal banks, both of which were allowed to grow in size until they significantly impacted the financial performance of the universal bank in question. The failure of both UBS and Citibank to recognize the risks inherent in a type of asset that was backed by subprime mortgage collateral both distorted the price of buying protection against the default of such collateral and had systemic consequences. In another example of a gargantuan error, JPMorgan Chase Bank’s faulty modeling caused it to purchase huge quantities of a specific derivative contract, distorting the market price, and costing the bank billions in losses.

Finally, the article discusses margin lending by universal banks in the 2007-08 crisis. Modern margin lending takes the form of repurchase agreements, and these contracts were central to the financial instability that required extraordinary intervention by both regulators and legislators. Researchers have now established (what the legislators who passed the Glass-Steagall Act already understood) that margin lending markets are characterized by feedback loops that tend to create asset price booms and busts.

Although the recent financial crisis and the stock market boom and bust of the late 1920s and early 1930s exhibit many similarities, the responses of regulators and legislators do not. In the 1930s legislators sought to put an end to feedback loops in the financial sector that cause destabilizing asset price booms and busts by circumscribing the points of contact between commercial and investment banking. Modern regulators, by contrast, generally treat this problem of “procyclical leverage” as inherent in financial markets, and seek only to moderate its effects using macroprudential regulation.

Section VI concludes, arguing that a Glass-Steagall Act for the 21st century should be viewed not as a means of protecting the banking system, but as a means of protecting capital markets from the banking system.

I. RELATED LITERATURE

This paper is related to the vast literature on universal banking. There is not enough space to do a complete review of this literature here, so this section only seeks to highlight key points of comparison with this work. A more thorough review of the literature is available in Guinnane (2002).² A brief review of the debate over the Glass-Steagall Act that took place in the 1980s and 1990s is given in Section IV.D.

To a large degree the debate over the relative merits of universal banking and of functional separation between financial intermediaries has been framed by Alexander Gershenkron's 1962 essay on the important role played by German universal banks on the industrial growth of the German economy.³ The literature on universal banking continues to focus largely on the question of industrial finance, and the degree to which financial structure imposes or does not impose costs and credit constraints on industry.⁴ This paper argues that an equally important question is the effect of universal banking on the quality of financial markets, in part, because financial instability can adversely affect economic performance.

A traditional explanation for prohibiting universal banking is based on the argument that it causes concentration in the financial industry and that this concentration has adverse effects. In many ways this paper expands on this traditional view. In the academic debates that preceded the reinterpretation and repeal of Glass-Steagall, the traditional view appears, however, to have been voiced only rarely. David Ratner is an example:

[T]he idea of genuine competition over an extended period between banks and securities firms is illusory. Because of the competitive advantages that can be obtained by combining securities activities with commercial banking, I suspect that in the long run the firms without commercial banking connections would either be

² Timothy Guinnane, *Delegated Monitors, Large and Small: Germany's Banking System, 1800-1914*, 60 J. ECON. LITERATURE 73 (2002).

³ Alexander Gershenkron, *Economic backwardness in historical perspective*, in ECONOMIC BACKWARDNESS IN HISTORICAL PERSPECTIVE: A BOOK OF ESSAYS 5, (1962).

⁴ See, e.g. Robert Chirinko & Julie Elston, *Finance, control and profitability: the influence of German banks*, 59 J. ECON. BEHAVIOR & ORG. 69 (2006); Caroline Fohlin, *Banking Systems and Economic Growth: Lessons from Britain and Germany in the Pre-World War I Era*, FED. RESERVE BANK OF ST. LOUIS REV. 37 (May/June 1998); Richard Tilly, *Universal Banking in Historical Perspective*, 154 J. INST. & THEORETICAL ECON. 7 (1998). Note that Tilly does observe that "the key to the uniqueness of universal banking as a system of finance lies in . . . the relationship between universal banking operations and the security markets" and that "this pattern deserves more research attention." *Id.* at 20.

absorbed or driven out of the business altogether. This would result in an increased concentration of economic power . . . without any significant countervailing benefits to consumers.⁵

Ratner's understanding of the consequences of universal banking is closely related to two of my points: it appears that universal banks often succeed in promoting profitable over the counter markets and repressing less-profitable public markets, and the size of universal banks means that when they err, their errors are at best dangerous and at worst devastating to the financial system and the economy.

Caroline Fohlin (2000) attempts to use empirical evidence to rebut the view that there is a causal relationship from universal banking to banks of large size, but she omits an key aspect of the argument for a causal relationship: an important reason for concern about concentration in a universal banking system is that large size provides a significant advantage to dealers on securities markets, so the same forces that prompt concentration also enable large banks to dominate and distort securities markets. She observes that specialized British commercial banks were bigger than German universal banks and some American banks were as large.⁶ It is not clear, however, what such a cross-country comparison can hope to establish: the question is whether the German banking system was more concentrated than it would have been under specialized banking, and whether the reverse was true in the U.K. and the U.S. Because the claim that commercial bank participation in securities markets is a cause of concentration is distinct from a claim that it is the only cause of concentration, the fact that the specialized U.K. commercial banking system was very concentrated is not particularly relevant. Since the stock exchange in the U.K. was insulated from the influence of these large banks, the consequences of concentration in the two countries would presumably be entirely different. Similarly her conclusion that the cost of bank loans appears to be lower in Germany than the U.S.,⁷ does not speak to concerns about stock market inefficiencies. Thus, when she concludes that "the data reject the common notion that the disadvantage of the German universal banking system was its excessive concentration,"⁸ she reaches this conclusion without engaging the arguments made in this paper.

⁵ David L. Ratner, *Deregulation of the Intersection Between the Banking and the Securities Industries*, in THE DEREGULATION OF THE BANKING AND THE SECURITIES INDUSTRIES 323, 329 (Lawrence G. Goldberg & Lawrence J. White ed., 2003) (reprinting papers from a 1978 conference).

⁶ Caroline Fohlin, *Banking Industry Structure, Competition, and Performance: Does Universality Matter?* 6 (CalTech Social Science Working Paper 1078, Oct. 2000).

⁷ *Id.* at 18.

⁸ *Id.* at 12.

Proponents of universal banking in the U.S., such as Charles Calomiris and George Benston, focus by contrast on the benefits of size, due to economies of scope and economies of scale.⁹ This view and the marginalization of views like Ratner's have become so pervasive over the course of the universal banking debate that Fohlin writes that "common wisdom . . . views universality as more efficient, but less competitive, than specialization."¹⁰ She interprets her evidence as indicating, however, that "universal banks are not significantly more efficient than specialized banks in providing commercial services."¹¹

Calomiris and Benston responded to concerns about financial instability due to concentration, with the observation that bank failure has historically been a much greater problem in economies with small, specialized banks, and the claim that diversification will make universal banks less likely to fail than specialized banks.¹² This paper argues that the recent crisis provides evidence that undermines this point of view. Furthermore, as Timothy Guinnane notes, Calomiris' argument for the economic efficiencies created by universal banks' ability to collude with each other should be evaluated with some skepticism: the likelihood that the ability to collude may create inefficiencies cannot be ignored.¹³

As noted above, the foremost example of universal banking is the German financial system, which Guinnane describes: "[i]n contrast to the United States, with its well-developed financial markets and comparatively weak financial intermediaries, Germany's financial system has relied on strong banks and weak financial markets."¹⁴ Although the weakness of German financial markets has long been recognized, the focus of the literature on the question of whether German firms were able to get financing has meant that the question of whether Germany would have had stronger markets had its banks been weaker is rarely addressed.¹⁵ Caroline Fohlin (2007) gives a spirited defense of German universal banking and its relationship to markets. She points out that funds raised on securities markets played an important role in

⁹ Charles Calomiris, *The Costs of Rejecting Universal Banking: American Finance in the German Mirror, 1870-1914*, in COORDINATION AND INFORMATION: HISTORICAL PERSPECTIVES ON THE ORGANIZATION OF ENTERPRISE 269-70 (Naomi R. Lamoreaux and Daniel M.G. Raff ed., 1995); GEORGE BENSTON, THE SEPARATION OF COMMERCIAL AND INVESTMENT BANKING 187 – 90 (1990).

¹⁰ Fohlin, *supra* note 6, at 23.

¹¹ *Id.* at 25.

¹² Calomiris, *supra* note 9, at 269-70; BENSTON, *supra* note 9, at 184.

¹³ Guinnane, *supra* note 2, 110, 114-15.

¹⁴ *Id.* at 73.

¹⁵ Benston addresses the quality of German markets in a cursory manner, pointing out, first, that amongst many factors there is no reason to attribute the cause of weak markets to universal banking, and second, that most likely competitive markets would produce deeper securities markets if Germans wanted them. BENSTON, *supra* note 9, at 193 – 94. He apparently is abstracting from problems of asymmetric information and the interaction of these problems with market power.

the finance of German industry, and therefore the weakness of the market should not be exaggerated.¹⁶ Guinnane, however, observes that, even in modern times, publicly traded companies are not as important to the German economy as they are elsewhere.¹⁷ Fohlin also tests for a difference in performance between the shares of firms with and without close ties to a bank, but acknowledges that her data cannot answer the question of whether universal banks influenced the prices of all shares trading on the market.¹⁸ In short, Fohlin's research indicates that there is in the German data an absence of evidence to support or to deny a causal interpretation of the correlation between universal banking and relatively weak financial markets.

The argument made in this paper that the growth of commercial bank participation in capital markets activities is causally related to the financial instability of both the 1920s and the first decade of the 21st century raises the question: Why didn't historical German financial institutions and markets exhibit the same instability in the presence of universal banking that is found in the U.S.? I can only speculate on the answer to this question, but the limited amount of trading on German stock markets may be closely related to their stability. Alternatively, it is possible that other institutional factors play an important role in stabilizing the German financial system: in particular German corporations are not run by a board of directors that is generally focused on maximizing shareholder returns, but by a body composed of the various interest groups that make up the corporation. Such a body could play an important role in preventing universal banks from taking actions that will tend to cause financial instability.¹⁹

¹⁶ Caroline Fohlin, *Does Civil Law Tradition and Universal Banking Crowd out Securities Markets? Pre-World War I Germany as Counter-Example*, 8 ENTERPRISE & SOCIETY 602, 633-34 (2007). Fohlin (2000) also makes the claim that her data shows that the hypotheses that underdeveloped markets either necessitate universal banking or stem from it "fail[] as a general principal." Fohlin, *supra* note 6, at 5. The reasoning behind this claim is, however, not entirely clear. She compares U.S. commercial bank assets over stock market capitalization with German universal bank assets over stock market capitalization and finds that the latter is much smaller than the former, but does not explain why it is appropriate to compare U.S. commercial banks to German universal banks, instead of a broader category of German banks. She notes that stock market capitalization as a share of GDP was greater in early 20th c. Germany than in the U.S., but then observes that the reverse is true for domestic securities issued as a percentage of GNP. *Id.* Her point appears to be that these particular data points do not mark Germany as having an underdeveloped stock market, but this underdevelopment is a fact that is already established by other comparisons, *see* Guinnane, *supra* note 2, at 73, and she would need to explain why the particular data she has chosen to evaluate should be weighed more heavily than other data. The focus in the present paper is the continuity of trade on the two stock markets, which she does not address.

¹⁷ Guinnane, *supra* note 2, at 119.

¹⁸ Fohlin, *supra* note 16, at 632-33.

¹⁹ See, e.g., H.W. Buschen, *The Universal Banking System in the Federal Republic of Germany*, 2 J. COMP. CORP. L. & SEC. REG. 1, 10 (1979) ("German banks can be expected to assume direct responsibility for the maintenance of an orderly capital market.").

II. THE FUNCTIONAL SEPARATION OF FINANCIAL ACTIVITIES IN THE U.S. AND ENGLAND

In this section of the paper the relationship between banks and financial markets is evaluated from the perspective of the rules of the stock exchange. Both the U.S. and England had very active and strong financial markets, and in each country the rules of the stock exchange played an important part determining the degree to which there was functional separation in the performance of financial market activities. The rules of the London Stock Exchange were the most stringent, so England is addressed first, and the U.S., second.

A. England

At the turn of the 20th century the London Stock Exchange was the most important stock exchange in the world and the London market was an important venue for financing infrastructure projects around the world. The LSE also had a unique structure and subjected its members to remarkably strict rules that governed the Exchange until 1986.

The London exchange imposed “single capacity” on members, requiring each to declare annually both whether he was a broker or a dealer, and that he engaged in no other business. Any partners of an exchange member were required to also be members of the exchange and were required to perform the same role on the exchange. Thus exchange member firms were either brokers who executed trades for customers and earned their income from commissions, or dealers who posted bid and ask prices for stocks, were prohibited from dealing directly with non-exchange members, and earned their income from the bid-ask spread and from trading for their own account.

In addition, corporations were prohibited from being members of the Exchange. Because the business of commercial banking required access to a large pool of capital, by the start of the 20th century the commercial banks were almost all corporations.

Thus, in Britain the rules of the Stock Exchange explain much of the functional separation that characterized the British financial system: brokering, dealing, and underwriting were segregated

activities, and the only capital market activity which was potentially open to a commercial bank was underwriting. By custom, however, underwriting was the business of unincorporated merchant banks.²⁰

The single capacity rule had its origins in the 19th century, and was viewed by the Parliamentary commission that investigated the Exchange in 1878 as necessary to ensure that stockbrokers honored their duties as the agents of their customers, and thus that the exchange served the interests of the trading public.²¹ That single capacity was “an elegant and highly effective means of investor protection” was widely recognized in the mid-1980s when the rule was being eliminated as part of a wholesale revamping of the Stock Exchange.²²

The prohibition on corporate membership was adopted in the 19th century and was likely influenced by the slow embrace of the corporate form in Britain and the initial view that only a limited number of industries – that did not include capital market intermediaries – had capital needs that justified incorporation.²³ Over the course of the 20th century – and in particular with the rise of institutional investors who place large orders – the capital needs of Exchange members increased. Even so, corporate membership on the Exchange was controversial.

By the mid-20th century the prohibition on corporate membership was understood as protecting the market from being dominated, as some of the exchanges in continental Europe were, by a small group of large banks that could “dictate prices” and undermine the competitive foundations of the London exchange’s market pricing mechanism.²⁴ In an effort to increase access to capital while reducing the danger that the market would be dominated by a few very large dealers, the London Stock Exchange

²⁰ Although no law similar to Glass-Steagall had ever been adopted in Britain, the separation of merchant (or investment) banks from commercial banks in London was an institutional fact. Edward Stourton, *Analysis: A Price Worth Paying*, BBC RADIO 4 at 5:18 min. (Feb. 1, 2010), <http://www.bbc.co.uk/radio/player/b00qbxwj>. See also Christopher McMahon, *Changes in the Structure of Financial Markets: a view from London*, BANK OF ENGLAND Q. BULL. 75, 76 (1985) (publication of speech given on Nov. 27, 1984).

²¹ LONDON STOCK EXCHANGE COMMISSION, REPORT 7 (1878) (U.K.) [hereinafter LSE COMM’N REPORT] (“By a recent amendment of rule 40, the Committee have refused to allow members to act in the double capacity at the same time, and this coincides with the distinction which ought to be maintained between those members who act as principals on their own account, and those members who act on account of principals whether disclosed or not outside the Stock Exchange.”). See also *id.* at ¶¶ 1296-97 (testimony of G.W. Medley, dealer in U.S. securities); FRANCIS CHISWELL, KEY TO THE RULES OF THE STOCK EXCHANGE 38 (1902); RANALD MICHIE, LONDON STOCK EXCHANGE: A HISTORY 439 (2001) [hereinafter MICHIE LSE].

²² McMahon, *supra* note 20, at 77; Anthony Loehnis, *Financial Restructuring: the United Kingdom Experience*, in RESTRUCTURING THE FINANCIAL SYSTEM 81, 91 (Fed. Res. Bank of Kansas City Symposium, 1987).

²³ See ROB MCQUEEN, A SOCIAL HISTORY OF COMPANY LAW 133-35 (2013).

²⁴ MICHIE LSE, *supra* note 21, at 435, 437. See also, *Business Finance in the United Kingdom and Germany*, BANK OF ENGLAND Q. BULL. 368, 370 (1984) [hereinafter *Business Finance*].

permitted its members to form limited partnerships in 1965, while at the same time explicitly excluding financial institutions, such as banks and securities issuers, as possible partners.²⁵ Insufficient external capital was forthcoming, and in 1969 the London Stock Exchange permitted investments by financial institutions in member firms, but also required that 51% of the shares be held by Stock Exchange members.²⁶ Only in 1986 as part of the wholesale reform of the Exchange in the Big Bang, did the London Stock Exchange allow limited liability corporations to be members and permit 100% ownership of a member firm by a non-member.²⁷

B. United States

Unlike the London Stock Exchange, up through the first decades of the 20th century the New York Stock Exchange was never subject to investigation by a commission formed by the legislature of the national government – and was never asked to enforce a single capacity rule or a strict approach to agency law.²⁸ Thus, even though stockbrokers were by law the agents of their customers in New York just as they were in London, on the New York Stock Exchange brokers were permitted to deal. The rules of the exchange prohibited acting as broker and dealer in the same transaction – or receiving a commission while at the same time taking the other side of the client’s order – but more general compliance with agency law and its requirement that the broker receive a waiver from the client after full disclosure of all conflicts of interest was left to the members themselves to manage.

As a result of the weaker rules adopted by the New York Stock Exchange, in U.S. capital markets investment banks underwrote securities issues, had partners who were members of the Exchange, and both brokered and dealt not only in exchange-traded securities, but also in the over-the-counter securities that traded outside the Exchange. In short, a wide range of capital market functions was performed by U.S. investment banks.

The New York Stock Exchange rules did prohibit corporate membership on the exchange, and, just as was the case in Britain, this had the effect of prohibiting commercial banks from being members of the exchange. Exchange rules did not, however, govern underwriting activities or trade that took place in

²⁵ MICHIE LSE, *supra* note 21, at 436.

²⁶ *Id.* at 439.

²⁷ D.H.A. Ingram, *Change in the Stock Exchange and Regulation of the City*, BANK OF ENGLAND Q. BULL. 54, 55 (1987).

²⁸ LSE COMM’N REPORT, *supra* note 21, at 7

other venues than the exchange. Furthermore, because the New York exchange restricted the securities that could be traded on the exchange (whereas the London exchange did not), the majority of securities – most of which traded very infrequently – did not trade on the New York Stock Exchange.

In the U.S. statutory restrictions also played a role in limiting the activities of commercial banks, but these restrictions changed over time. In the late 19th century the Supreme Court interpreted the National Bank Act to prohibit nationally chartered banks from dealing in non-government securities or investing in equity securities.²⁹ The National Bank Act was, however, also interpreted to permit loans secured by the stock of another corporation as collateral.³⁰ Thus, at least one capital markets activity – that would put national banks in the position of owning stocks at least temporarily – was permitted to commercial banks in the U.S. from the early years of their existence.

Furthermore, in the early years of the 20th century, national banks started to use securities affiliates that were chartered under state law and not subject to the National Bank Act to underwrite and place new issues of securities, including equities. By the 1920s such activities were implicitly approved, as the Federal Reserve had accepted as members state-chartered banks that used affiliates to engage in underwriting.³¹ In February 1927 the McFadden Act sought to even the playing field between national and state-chartered banks by, amongst other changes, authorizing national banks to underwrite securities. From 1926 to 1927, the value of new securities issues increased by more than 30% and continued to increase for the next two years.³² By 1930 the market share of commercial banks and their securities affiliates had grown so large that they were underwriting more than half of all securities issues.³³

Observe, however, that claims that “the institutional separation of banking functions [in the U.S.] was, by the end of the 1920's, a thing of the past” are overstated.³⁴ While commercial banks had become important players in the business of underwriting new issues, there is little evidence that they were

²⁹ *First National Bank v. National Exchange Bank*, 92 U.S. 122 (1875); *California National Bank v. Kennedy*, 167 U.S. 362 (1897).

³⁰ *Nat. Bank v. Case*, 99 U.S. 628, 633 (1878). By contrast, loans secured by real estate were prohibited, although the prohibition was voidable only by the government, not the borrower. *Nat. Bank v. Matthews*, 98 U.S. 621, 625, 628 (1878).

³¹ Edwin Perkins, *The Divorce of Commercial and Investment Banking: A History*, 88 *BANKING L. J.* 483, 491 (1971).

³² *BD. OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM, BANKING AND MONETARY STATISTICS 1914-1941* at 487 (1943) [hereinafter *FED BANKING & MONETARY STATS.*].

³³ Letter from Kathryn Fulton, Director SEC Office of Legislative Affairs to Elisse Hoffman and Timothy Forde at 3 (June 24, 1994), available at www.sechistorical.org. See also Perkins, *supra* note 31, at 495, 527.

³⁴ Perkins, *supra* note 31, at 496.

playing an important role in brokering and dealing on secondary markets, and it is certain that they were not brokering and dealing in the most frequently traded securities, because almost all trade in those securities took place on the New York Stock Exchange, where the doors were closed to the commercial banks. In short, by 1930 commercial banks in the U.S. played a significant role in capital markets, but one that was also circumscribed by the rules of the stock exchange.

The logic behind the exclusion of corporations, and therefore commercial banks, from the stock exchange was understood in the U.S., as it was in Britain, as a means of ensuring that there was a competitive pricing mechanism on the exchange and that the exchange was not dominated by a small number of large commercial banks. An economist employed by the New York Stock Exchange wrote in 1930 that it is a principle of Anglo-American finance that both the money market and the stock market are best served when “stock brokerage is organized as a specialized business separate and distinct from commercial banking.”³⁵ He characterized the German market, where retail banks participated actively on the exchange, as having the properties of a “money trust,” and described the brokerage business there as “largely swallowed up by a few powerful incorporated banking institutions” which prevented the “development of a ‘free and open’ market of the type maintained by the stock exchanges of New York and London.”³⁶

In 1933 the Glass Steagall Act would be passed, prohibiting commercial banks from dealing in, underwriting or distributing non-governmental securities or from affiliating with a company that did so. This took place only six years after the McFadden Act had been passed, so the reversal of policy was dramatic. As will be discussed in Section IV, Congress found that the experiment with commercial bank underwriting of securities had gone badly wrong.

Thus, in Britain the functional separation of the various financial market activities was based in large part on the rules of the stock exchange, that were in turn designed to ensure that financial intermediaries who acted as agents for clients did not face conflicts of interest. In the United States stock exchange rules prevented commercial banks from playing a significant role in brokering and dealing – and thus in the price formation process – on the exchange, but not from underwriting and placing new issues of securities. Over the first few decades of the 20th century, commercial banks began to enter the underwriting business, culminating first in implicit approval of these activities and then in explicit

³⁵ J. EDWARD MEEKER, THE WORK OF THE STOCK EXCHANGE 652 (1930).

³⁶ *Id.*

Congressional authorization in 1927. Within just a few years commercial banks would dominate the underwriting business, the issuance of new securities would double, and the stock market boom and crash of the late 1920s would convince Congress that the experiment had been a mistake.

III. THE CONSEQUENCES OF ELIMINATING FIREWALLS BETWEEN COMMERCIAL BANKS AND SECURITIES MARKETS

In both the U.S. and Britain, the ban on corporate stock market membership was understood to prevent domination of the exchange by a small group of commercial banks. This view was influenced by knowledge of the German stock market, where commercial banks played an important role. In this section first I discuss the characteristics of the German stock market and explain why dealers prefer non-transparent over-the-counter trading to trading on an exchange, then I discuss the advantages that commercial banks have in providing liquidity to markets and the dangers created when commercial banks are permitted to deal on financial markets and to lend against securities as collateral.

A. Why Securities Exchanges Are Weak in Universal Bank-Based Financial Systems

The German stock market is the most often cited example of a stock market that has always been dominated by universal banks that act both as commercial banks and as investment banks, issuing, dealing in, and brokering shares. In Germany securities that are publicly issued and traded on the stock exchange have for decades – and probably for more than a century – played a much smaller role in the finance of business than they did in the U.S. or Britain.³⁷

Not only did German companies rely less on publicly traded securities for funding, but trading on German stock exchanges was less active than in Anglo-American markets. As late as the 1980's the German stock market was not a continuous market, but conducted daily batch auctions, a system that had been established a century earlier.³⁸ Due to the limited trading on the stock market, most trading occurred over the phone with and between the universal banks, in what would have been called an “over-the-counter”

³⁷ See, e.g., Ross Levine, *Bank-Based or Market-Based Financial Systems: Which is Better?* 11 J. FIN. INTERMEDIATION 398, Table 1 (2002); *Business Finance*, *supra* note 24, at 368-69. See also *supra* notes 14, 17 and accompanying text.

³⁸ The pricing process dates from the latter years of the 19th c. and is described in Thomas Gehrig & Caroline Fohlin, *Trading Costs in Early Securities Markets: The Case of the Berlin Stock Exchange 1880–1910*, 10 REV. FIN. 587, 588, 593 (2006). For the process in the 1980s, see *Business Finance*, *supra* note 24, at 370.

market in the United States.³⁹ By contrast, both the London and New York stock exchanges have offered continuous trading during the day since the 19th century.

For German markets data on the volume of shares traded in the early 20th century is not available. The data that is available indicates that the value of trade on the German exchange did not increase from 1884 to 1913, whereas estimates of the value of over-the-counter trades increase by 10% a year over this period.⁴⁰ For comparison, the volume of shares traded on the New York Stock Exchange more than doubled from 1884 to 1909 and the value of shares traded more than tripled.⁴¹ Overall this data supports the conventional view that in these formative years, continuous markets like the New York Stock Exchange were more active and better able to foster exchange trading.

An important advantage of markets that trade continuously is that traders who wish to trade immediately do not need to wait for the batch auction or call up the banks one by one to get bids. Delay will be particularly problematic if the investor expects the value of the trade to change over the course of the day, or if the bank that holds the investor's shares is aware of the immediacy of the investor's need for cash (because, for example, of a margin call) and adjusts its own bid to reflect that knowledge.⁴² It appears that investors value immediacy: as Larry Harris observes many national exchanges have switched from batch auctions to continuous trading, but none have made the reverse move.⁴³ Presumably the reason for this apparent preference is that investors value the ability to cash out moderately-sized positions at the market price on demand without paying a markup for demanding immediacy.

³⁹ *Business Finance*, *supra* note 24, at 370; Guinnane, *supra* note 2, at 105 ("The largest banks operated what amounted to internal securities markets."); Fohlin, *supra* note 16, at 620.

⁴⁰ Fohlin, *supra* note 16, at 623-24. Note that Fohlin actually states that the ratio of the value of over-the-counter trading to exchange trading increases by about 10% a year.

⁴¹ Data from A. PIATT ANDREW, *STATISTICS FOR THE UNITED STATES, 1867-1909* at 9 (1910).

⁴² Two facts about the pre-World War I German stock market support this interpretation of the costs of the daily batch auction. Gehrig & Fohlin find that the daily volatility of returns on the Berlin exchange was comparable to that on modern markets, *supra* note 38 at 609, whereas DeLong & Becht find that the monthly volatility of a Berlin index exhibits extremely low volatility compared to both contemporary and modern markets, Bradford DeLong & Marco Becht, 'Excess Volatility' in the German Stock Market, 1876-1990 at 19 (NBER Working Paper w4054, 1992). It is possible that the significant role played by universal banks in the trading market helped ensure that the index was a relative accurate predictor of value, as DeLong & Becht speculate, but that the daily volatility of prices are an indicator that the banks were able to extract some of the value of that knowledge by allowing prices to adjust based on daily trading activity.

⁴³ See LARRY HARRIS, *TRADING AND EXCHANGES: MARKET MICROSTRUCTURE FOR PRACTITIONERS* 91 (2003).

Superior liquidity is the most important service that a stock exchange provides compared to other trading venues.⁴⁴ A liquid market is one where large transactions can be effected quickly without causing prices to move significantly; as a result, a liquid market offers not only immediacy, but also price continuity. Consider how important it is that a price quoted now be a reasonable approximation of the price the investor can get in a few minutes. In the contrary case where sudden, abrupt changes in price are constantly occurring, a price quotation is of little value. In short, on a liquid market price quotations are valuable, because others can expect to trade in the same market at a similar price.

Thus, one indicator of the value of the dynamism of Anglo-American financial markets is the fact that exchanges spent the latter part of the 19th c. establishing a legal property right in their intra-day price quotations and policing the dissemination of these quotes.⁴⁵ The value that was placed on these intra-day quotations is strong evidence that traders did indeed expect to be able to trade at a price similar to that quoted, and thus that markets were liquid.

There are two phenomena that tend to make price continuity or liquidity difficult to maintain on an exchange with continuous trading. For stocks that trade only sporadically, orders to buy and sell arrive at different points in time and the difficulty of matching demand with supply can lead to price fluctuations. Frequently traded stocks can face a similar problem, when particularly large orders to buy or sell a stock are placed only intermittently. Thus, price continuity in a stock market is only possible if someone is ready to hold inventory temporarily until such time as offsetting orders arrive.⁴⁶ On exchanges the general term for the dealers who provide this service is market makers.

Exchanges differ from over-the-counter (OTC) markets, because exchanges report both quotations and the prices of executed trades. Since quotations are not made public on OTC markets, traders have to

⁴⁴ This approach differs somewhat from that of Larry Harris, *id.* at 206-43, who claims that “good markets” are not only liquid, but also produce prices that are informative or “close to fundamental value.” This article takes an economist’s approach to the relationship between prices and fundamental value: while it is trivially true that economic forces work to eliminate opportunities for certain profits, there is no reason to believe that any given market price reflects fundamental value, and it is generally difficult if not impossible to demonstrate that any given market structure improves the “informativeness” of prices. See Carolyn Sissoko, *Taking Asymmetric Information Seriously*, CAP. MKTS. L.J. (forthcoming 2015).

⁴⁵ J. Harold Mulherin, Jeffrey M. Netter & James A. Overdahl, *Prices Are Property: The Organization of Financial Exchanges from a Transaction Cost Perspective*, 34 J.L. & ECON. 591, 616ff. (1991). MICHIE LSE, *supra* note 21, at 80-81.

⁴⁶ See HARRIS, *supra* note 43, at 401; Sanford Grossman, *Trading Technology and Financial Market Stability* 15 (Wharton School White Ctr. for Fin. Res. Working Paper No. 17-89, 1989) (“the problem is that a deep liquid market requires firm bids and offers for large sizes”).

actively seek out quotations, and the costs of doing so mean that dealers do not need to set their prices as competitively on OTC markets as they must on exchanges. Furthermore, the fact that executed trades typically do not need to be reported in OTC markets makes it very difficult for a trader to determine whether the dealer gave her a good price. Largely because of the lack of transparency that characterizes OTC markets, it is widely accepted that they are less competitive than exchanges and that securities dealers find it more profitable to make OTC markets than to be market makers on an exchange.⁴⁷ In short, the interests of the public are more likely to be served by financial markets where securities trade continuously on an exchange, whereas the interests of the dealers are likely to be served by financial markets where most trading takes place OTC.

The fact that non-transparent markets are more profitable for dealers to trade on than exchanges is interesting in light of the historical structure of German financial markets. Not only were German markets dominated by banks, but the stock exchange was thinly traded and underdeveloped by comparison with Anglo-American markets even up to the 1980s. Perhaps, this structure reflects the fact that it was in the interests of Germany's universal banks to trade as much as possible over-the-counter and to have a stock exchange that was of only secondary importance.

B. The Benefits of Large Securities Dealers

Prior to the admission of corporations to stock exchange membership, both English and American stock exchange members were able to predict correctly that commercial banks would dominate securities markets as soon as they were permitted to deal on them.⁴⁸ They were able to make this prediction because they were well aware of the advantage that large size gives a dealer. The largest commercial banks are large relative to dealer banks, not just in terms of assets, but also in terms of capital. Their low-cost

⁴⁷ DARRELL DUFFIE, DARK MARKETS: ASSET PRICING AND INFORMATION TRANSMISSION IN OVER-THE-COUNTER MARKETS 7 (2012) ("Dealers have a vested interest in maintaining trade in OTC markets, where the profitability of intermediation is enhanced by market opaqueness."). For example, it is well documented that in an "OTC market, different investors may pay quite different prices for the same asset at essentially the same time." *Id.* at 12. This profitability of information flows in dark markets has been demonstrated using empirical methods. Lukas Menkhoff, Lucio Sarno, Maik Schmeling, & Andreas Schrimpf, *Information Flows in Dark Markets: Dissecting Customer Currency Trades* 2-3, (BIS Working Paper No. 405, Mar. 2013). See also Richard Green, Burton Hollifield & Norman Schurhoff, *Dealer intermediation and price behavior in the aftermarket for new bond issues*, 86 J. FIN. ECON. 643 (2007); Massimo Massa & Andrei Simonov, *Reputation and Interdealer Trading*, 6 J. FIN. MKTS. 99, 116 (2003).

⁴⁸ See *supra* notes 24-26, 35-36, and accompanying text. Indeed, David L. Ratner, a Cornell law professor, made the same prediction at a 1978 conference discussing the repeal of the Glass Steagall Act. Ratner, *supra* note 5, at 329.

deposit-based funding is another advantage. These characteristics mean that it is easier for commercial banks to provide liquidity by dealing on markets than for others to do so.

First, the commercial banks' access to cheap funding in the form of low-cost deposits gives them a significant advantage. Because dealers typically borrow to finance their inventories, a commercial bank-dealer will be able to make more in profits on every financed position than a dealer who must pay more to borrow.⁴⁹ While it is possible that these profits will be eliminated by competition between commercial bank-dealers, it is important to recognize that this competition will also force the dealers who are not affiliated with a commercial bank to exit the market.

More importantly, however, there are, in general, limits to the ability of a market making dealer to provide liquidity by carrying inventory.⁵⁰ For example, a small dealer that takes a very large position in a single stock may risk failure if the stock suddenly falls in value due to an extreme adverse event. Thus a market making dealer's capitalization functions as a limit on the dealer's ability to bear risk and to make markets. If the size of orders on the market grows to exceed the capacity of most market making dealers to bear risk, it will be a common event that an order cannot be executed immediately with the result that prices become more volatile, due to the increase in the demand for liquidity.⁵¹

The advantage of market making dealers with large capitalization is, then, that they will generally have an easier time executing large orders than small firms, because large trades are smaller relative to their resources. Furthermore, to the degree that the trades arriving on the market are of a size that requires the large dealers' ability to execute trades, large market making dealers will do a better job of providing liquidity to the market than small ones.⁵²

⁴⁹ Roger Mehle, *Bank Underwriting of Municipal Revenue Bonds: Preserving Free and Fair Competition*, 26 SYRACUSE L. REV. 1117, 1139-40 (1975).

⁵⁰ HARRIS, *supra* note 43, at 401; David Easley, Soeren Hvidkjaer, & Maureen O'Hara, *Factoring Information into Returns*, 45 J. FIN. & QUANT. ANAL. 293, 294 (2010), notes the relationship between market maker constraints and liquidity. Similar issues are discussed in Andrei Schleifer & Robert Vishny, *The Limits of Arbitrage*, 52 J. FIN. 35, 37 (1997).

⁵¹ This problem was particularly evident on the New York Stock Exchange in the 1960s when the market was just adjusting to the growing size of institutional orders. Market makers on the Exchange who were equipped to handle smaller individual orders had difficulty maintaining price continuity and actually ended up turning to the over the counter markets, where trades were not publicized, in order to lay off the risk of the shares. Jonathan Macey & Hideki Kanda, *The Stock Exchange as a Firm*, 75 CORNELL L. REV. 1006, 1028, 1032 (1990); ROBERT SOBEL, N.Y.S.E. 256-57, 306 (1975).

⁵² See SOBEL, *supra* note 51, at 372-73, *quoting* Harry Keefe, president and founder of Bruyette & Woods.

C. The Costs of Large Securities Dealers

The benefits of the liquidity that can be provided by large universal bank market makers are offset by two sources of significant costs. First, size greatly increases the advantages that dealers gain from making OTC markets, and, second, the dealers' large capital base not only allows them to provide significant liquidity to markets, but, because these banks are so large relative to markets, it also allows their misjudgments about the market to have a much greater – and possibly destabilizing – effect on the market.

OTC markets provide opportunities for dealers to profit from their information advantage, as was discussed in subsection III.A. Any tendency towards concentration in such a market will benefit the large dealers who remain since they will see a greater fraction of the market's order flows.⁵³ Thus, the interplay between size and non-public information flows on OTC markets will tend to increase dealers' opportunities to earn supra-competitive profits based on an information advantage. As a result, we should expect universal banking to lead to financial markets that are dominated by an oligopoly which has interests that are directly opposed to promoting trade on a public exchange.

More importantly, however, when extremely large dealers err, those errors may have market-wide or even systemic effects. While price continuity is desirable, stock market pricing should also be responsive to the flow of information in the form of buy and sell orders. A single market making dealer with virtually unlimited resources has the capacity to become the market – by effectively acting as a central bank defending an exchange rate peg. Even when the mispricing is clear to smaller market participants, because they have less capital they may be too small to trade in a large enough size to arbitrage away the large dealer's pricing errors. Thus, when market makers have vast capital resources, the market price can be affected by the – possibly erroneous – views of a single dealer.

In addition, large market makers often have the ability to hold onto a losing position in hope that the market comes back, and when they misjudge a market that never comes back, the losses and the price shifts that take place when those losses are finally realized may occur on a scale that is not possible for smaller dealers that would have failed much earlier in the trade. That is, when a huge dealer errs, the error is likely be much more disruptive to markets than a similar error by a small dealer. The costs of such

⁵³ Menkhoff et al., *supra* note 47, at 3.

errors are then magnified by the fact that it is systemically important financial institutions that experience these dramatic losses.

Two recent examples of the systemic dangers created by simple errors in judgment on the part of large universal banks are the losses incurred by Citibank and UBS on subprime mortgages exposures, and J.P. Morgan Chase Bank's "London whale" episode. These are discussed in Section IV.

Capital markets need to be robust enough not to be destabilized by the poor judgment of any single participant, because it is certain that such errors of judgment will occur with some frequency. The traditional means employed in U.K. and U.S. markets to guarantee this robustness was for the market to be populated by relatively small participants that were bankrupted quickly by their errors. A problem with modern markets is that capital market participants are such mammoths that they can – and do – carry losing trades until their losses are of a size that can harm the mammoth. Even when such losses do not bankrupt the company, both the building and the unwinding of the trades causes significant disruption to markets and to market prices. Furthermore, when they do bankrupt the company, they bankrupt a systemically important financial institution with huge repercussion for both financial markets and non-financial markets.

D. The Dangers of Commercial Bank Lending on Margin

The 1920s offer another example of commercial bank participation in capital markets that results in the distortion of market prices. The Senate report on the bill that would become the Glass-Steagall Act gives a remarkably clear explanation of the destabilizing feedback loops that Senator Carter Glass, who wrote the report, believed to have caused the stock market boom and crash of the late 1920s. Here, I outline the basic elements of this view and connect it to the modern literature on financial instability, and in the next section I explain Senator Glass's view using quotes from the report.

Three key elements play a role in the instability that can be created by commercial banks when they lend on margin: the monetary role of commercial banks, the nature of margin lending, and the fact that borrowing decisions may be affected either by procyclical decision rules or adverse selection. Each of these elements is discussed in turn.

A key component of Senator Glass's claim that commercial bank participation in margin lending distorted financial market prices relies on the view that commercial banks are different from other lenders because of the role they play in the money supply. The early 20th century view of the economic function of banks was that their lending made it possible for the money supply to expand and contract with the needs of the

economy. The monetary role played by banks in the economy is, however, rarely acknowledged in the modern literature.

Although much of the literature on banking erroneously describes commercial banks as intermediating between savers and borrowers, in reality commercial banks do not need to source funds from savers, but can simply expand the money supply.⁵⁴ First, as a matter of accounting the act of making a bank loan creates both an asset, the loan itself, and a liability, the funds in the deposit account made available to the borrower, and this increase in deposits is an increase in the money supply. Thus, banks are distinguished from non-bank financial intermediaries by the fact that they do not need savers to provide the funds that they lend out, but can simply increase their deposits outstanding, subject of course to regulatory requirements. While it is true that the borrower is likely to withdraw the proceeds of the loan from the bank and spend them, in practice the recipient of the funds will almost certainly redeposit these funds in the banking system, so the effect on the money supply aggregated across the banking system remains until the loan is paid off.⁵⁵ Second, Federal Reserve monetary policy has for decades been based on the setting of an interest rate target and in order to meet that target, the Federal Reserve stands ready to expand (and contract) the supply of bank reserves to meet the demands of the banking system. Banks then evaluate each potential borrower with the understanding that they may need to borrow reserves to meet the regulatory requirements of holding deposits and thus that the interest charged to the borrower must include an appropriate markup over the cost set by the Federal Reserve of borrowing reserves. Thus, the Federal Reserve stands ready to meet the banking system's demand for reserves at the policy rate, and by this mechanism the Federal Reserve's interest rate policy affects the terms of all bank loans.⁵⁶ More generally the constraints on a banking system's ability to expand the money supply are given by any legal constraints on lending, central bank and regulatory policy, the behavior of borrowers (who may choose to

⁵⁴ For a more detailed discussion of the process by which commercial banks create money, see Micheal McLeay, Amar Radia & Ryland Thomas, *Money Creation in the Modern Economy*, BANK OF ENGLAND Q. BULL. 3 (2014). Theoretic foundations for this approach are established in an environment with liquidity constraints in Carolyn Sissoko, *An Idealized View of Financial Intermediation*, ECONOMICS: THE OPEN-ACCESS, OPEN-ASSESSMENT E-JOURNAL, 2007-5 (2007).

⁵⁵ In modern markets, large sums are held in money market funds instead of banks. Such holdings are counted in the M2 measure of the money supply.

⁵⁶ Note, first, that in other monetary policy regimes, banks still expand the money supply, but the mechanism is more complicated. Note, second, that in the post-2008 environment where the banking system is flooded with excess reserves, this traditional mechanism of controlling the money supply through the policy rate may be breaking down. And note, finally, that bank lending may also be constrained by the need to meet capital requirements, but these are always a very small fraction of the value of the loan, and if the bank sells the loan, there will be no capital requirement.

repay loans immediately), and the banks' evaluation of the profitability of lending.⁵⁷ Overall, commercial banks are distinguished from other lenders, because of the extraordinary ease with which they source their funds.

Margin loans are callable loans that are collateralized by liquid securities. Margin loans are structured to be safe for the lender: overcollateralization on them must be maintained, they can be called at any time, and the lender has the right to sell the collateral if the call is not met. The only situation in which an attentive margin lender loses money is when financial markets are so seriously disrupted that prices fall faster than the lender can sell despite overcollateralization. Many different terms have been used to refer to margin loans that have essentially the same characteristics: in the 1920s these loans were called call money loans or brokers' loans; in modern markets they are repurchase agreements.

Because margin loans are extremely safe assets for lenders, the call money market was the principal market in which bank reserves were invested in the years prior to the formation of the Federal Reserve.⁵⁸ Both national banks located throughout the country and state-chartered banks often held their reserves with a New York correspondent, and through the correspondent lent those reserves out on the call money market. After the founding of the Fed, this market not only continued to play an important role, but actually began to displace the secondary market for reserves, the commercial paper market, that the drafters of the Federal Reserve Act had hoped to strengthen.⁵⁹

Because of the extraordinary safety of margin loans, if legal constraints, central bank policy, and regulatory policy permit commercial banks to provide funding for these loans, then commercial banks

⁵⁷ See McLeay et al., *supra* note 54, at 4.

⁵⁸ FED BANKING & MONETARY STATS., *supra* note 32, at 434.

⁵⁹ John James finds that the decline in the commercial paper market can be attributed to changes in the banking system in 1924, a date which will also capture significant changes in the securities issuing behavior of commercial banks. John James, *The Rise and Fall of the Commercial Paper Market, 1900 – 1929*, in ANGLO-AMERICAN FINANCIAL SYSTEMS 241–42 (Michael Bordo and Richard Sylla, ed., 1995). James interprets 1924 as a turning point in the growth of large banks in the U.S. As Calomiris observes, commercial banks with securities affiliates tended to have large branching networks, because of the complementarity between the two activities. Calomiris, *supra* note 9, at 270.

Another factor, cited by contemporaries, in the decline was the fact that the same borrowers whose credit was of high enough quality to qualify them to issue commercial paper had easy access to securities markets. Note that unlike the British banking system which was founded on the circulation of “two-name paper” (i.e. commercial bills that had at least two guarantees of payment) and had received liquidity support from the Bank of England since the 18th century, the U.S. commercial paper market traded less liquid single-name commercial paper.

will meet borrowers' demand for these loans at a profitable rate of interest – which will include a risk premium only to the degree that the underlying assets are illiquid and overcollateralization is insufficient.

Thus, when commercial banks are permitted to provide funding for margin lending, they will allow this lending to grow to meet borrowers' demands. Because commercial banks expand the money supply when they lend, these extremely safe loans incentivize banks to expand the money supply alongside asset price increases. In effect, the fact that commercial banks do not need to source funds from savers, but can simply expand their liabilities in order to lend, means that a natural constraint on the growth of assets prices, the scarcity of funds, is eliminated when commercial banks are permitted to participate in margin lending markets. As a result of this structure, the only constraint on the growth of asset prices in such a market is the rationality of the borrowers. The modern literature identifies two situations in which borrowers' decisions may fail to constrain the growth of asset-backed debt: procyclical feedback loops and adverse selection.

That collateralized finance can be destabilizing due to procyclical feedback loops was established by Adrian and Shin.⁶⁰ When margin borrowers target a specific leverage ratio, as asset prices rise and the leverage ratio falls, these borrowers will purchase more leveraged assets to reduce the leverage ratio to the target. Then, the purchase of additional assets serves to reinforce the tendency for asset prices to rise, creating a feedback loop. This feedback loop also works in reverse: when asset prices fall, they trigger asset sales that tend to push asset prices down further.

Thus, when margin borrowers follow a decision rule that has the effect of targeting a specific leverage ratio, their behavior will tend to create a feedback loop that causes any movement in asset prices to be reinforced by the effect of the price movement on the borrowers' leverage. Adrian and Shin show that modern investment bank balance sheets exhibit this behavior possibly due to their reliance on a risk measure called Value-at-Risk.⁶¹ Thus, in certain environments, collateralized finance will be associated with asset price bubbles.

The second phenomenon which can distort asset prices in the presence of commercial bank-funded margin loan markets is adverse selection. The problem of adverse selection in markets for debt is well

⁶⁰ Tobias Adrian & Hyun Song Shin, *Liquidity and Leverage*, 19 J. FIN. INTERMEDIATION 418 (2010). Adrian and Shin show that investment banks which target a fixed ratio of the risk measure, Value-at-Risk, to equity will generate a procyclical feedback loop, that the data exhibits such procyclical leverage, and that repurchase agreements – or margin loans – are the mechanism through which the adjustment in leverage is achieved.

⁶¹ *Id.*

established. A lender who raises interest rates may find that this action discourages “good” borrowers who decide that borrowing is too expensive, but attracts “bad” borrowers who are less likely to repay the loan.⁶²

This has implications for commercial banks engaged in margin lending. If commercial banks are worried about an asset price bubble and therefore are concerned that asset prices may decline very suddenly, they may raise interest rates on margin loans to compensate for the potential illiquidity of the underlying assets. But this creates a classic problem of adverse selection: the increase in rates will cause the borrowers who understand that the rate increase is an indicator of growing instability in asset prices to exit the market, and the remaining borrowers will be risk-takers who are willing to risk bankruptcy or those who are either irrational or confused.

Margin loans are, however, carefully structured to be safe for the lender, so it is far from clear that the lender will find it necessary to raise interest rates; after all, if the loans are sufficiently overcollateralized the lender is protected. Therefore, it is important to observe that an increase in interest rates is not necessary to trigger adverse selection. Brunnermeier and Pedersen have established that the structure of margin loan markets – and in particular the possibility of forced sales – means that asset prices can collapse, diverging significantly from fundamental value.⁶³ Given the dangers of such a collapse in a margin loan market, borrowers with a sound understanding of the market will exit as the likelihood of an impending asset price collapse increases. Just as in the case of an increase in interest rates, the borrowers remaining in the market will be risk-takers, the irrational, and the confused.

This subsection has simply outlined and translated into modern terminology, what is really Senator Glass’s explanation for the stock market crash of 1929. The next section will discuss his explanation in his own words and present the data that supported his views.

Overall, while it is undeniable that universal banks can provide more liquidity to financial markets than stand-alone investment banks can, they do so at a cost. First, the cost advantages that the large commercial banks have ensure that, if they are permitted to act as dealers in financial markets, these markets will be dominated by a small group of large universal banks, whose interests are best served by

⁶² Joseph Stiglitz & Andrew Weiss, *Credit Rationing in Markets with Imperfect Information*, 71 AM. ECON. REV. 393 (1981).

⁶³ Marcus Brunnermeier & Lasse Pedersen, *Market Liquidity and Funding Liquidity*, 6 REV. FIN. STUD. 2201, 2202 (2009).

non-transparent OTC markets. As a result, when commercial banks are permitted to deal in financial markets, there is likely to be a strong tendency for trade to move off the public exchanges and into “dark” markets. Second, universal banks may generate systemic crises when they err in their judgment about markets. Finally, when commercial banks provide funding for margin loans, the interaction of the monetary role played by commercial banks with the pricing function of asset markets can create a feedback loop that promotes the formation of asset price bubbles.

IV. FROM GLASS-STEAGALL TO UNIVERSAL BANKING: THE 20TH CENTURY EVOLUTION OF FINANCE IN THE U.S. AND THE U.K.

According to the Senate Report on the Glass-Steagall Act, the Act was passed with the express purpose of preventing the U.S. banking system from being prone in the future to destabilizing feedback loops, such as the one that Senator Carter Glass believed to be the cause of the New York stock market’s boom and crash in the late 1920s and early 1930s. The movement from the functional separation embraced by the Act to universal banking in the U.S. was only possible after both stock market rules and the Act were revised. Stock market rules were reformed in the U.S. in the 1970s, resulting in the growth of large broker-dealers. The competitive advantages of large U.S. dealers motivated reform of the London Stock Exchange in 1986, and led to the growth of universal banking in Britain. Competition with British universal banks, then played an important role in the reinterpretation and repeal of Glass-Steagall. In short, the movement from the functional separation of financial activities in the U.K. and the U.S. to universal banking is best described as a process of competitive deregulation.

A. Glass-Steagall as a Remedy for Procyclical Leverage in the 1920s

Section III.D discussed how three elements can explain the role played by commercial banks and margin loans in the stock market boom and bust of the late 1920s: the monetary role of commercial banks, the safety of margin loans for the lender, and the effects of procyclical decision rules or adverse selection on borrowing. This subsection presents these issues as they were discussed in the Senate Report on the Glass Steagall Act, and provides data on what transpired in the call money market in the late 1920s as pressure from the Federal Reserve and Senator Glass forced banks to curtail the growth of their lending on that market.

Regarding the monetary role of banks, the Report states:

The years after 1925 . . . were years of a very great inflation of bank credit. . . . By inflation, in the sense in which that word is here used, is meant the increase of bank liabilities, usually demand liabilities, in a

proportion or degree materially greater than the rate of increase indicated by the requirements of a gradual growth of business transactions involving the production and distribution of goods—in a degree or ratio, therefore, greater than that in which the need for media of exchange had grown. . . .

It is now evident that the increase in deposit credit on the part of the banks already described was largely used in three ways: (1) in the carrying and inflating of the prices of securities, especially common stocks, [(2) on real estate, and (3) on capital equipment investment].”⁶⁴

That commercial bank finance of the call money market could have a distortionary effect on financial markets and the economy was a view that Senator Glass had held for many years. This view was also held by both the Federal Reserve Board and the Federal Reserve Bank of New York.⁶⁵ In 1928 Senator Glass sought to curtail the growth of the call money market by preventing Federal Reserve member banks from increasing their lending on this market.⁶⁶ The data in Chart 1 indicate that Senator Glass’s remonstrations and jawboning by the Federal Reserve may have had an effect: margin lending by banks themselves never exceeded the December 1927 level. Chart 1 also indicates, however, that margin lending itself increased dramatically. The Senate Report on the Glass-Steagall Act explains what happened.

First, however, it is important to take note of the behavior of interest rates in the call money market in 1928 and 1929. Chart 2 indicates that, as the growth of bank margin lending came to a standstill, the interest rate that borrowers were willing to pay jumped to exceed the prime rate, at first by 1 to 1.5%, but by mid-1929 it was sometimes double the prime rate. This interest rate was being paid on an overcollateralized and callable – or in other words, almost risk free – loan. Non-banks and foreign banks, classified in the data as “others,” had stepped in to lend on the market.⁶⁷

⁶⁴ S. REP. NO. 73-77 at 3 (1933) (submitted by Sen. Carter Glass) [hereinafter S. BANKING ACT REP.].

⁶⁵ MILTON FRIEDMAN & ANNA SCHWARTZ, A MONETARY HISTORY OF THE UNITED STATES 1867 -1960 at 254 (1963). What the Board and the New York Fed did not agree on was how to address the problem. *Id.* at 254-66. *See also id.* at 388 (quoting letter from George Harrison to Carter Glass dated Apr. 18, 1932).

⁶⁶ *Brokers’ Loans: Hearing on S. Res. 113 Before the S. Comm. on Banking and Currency*, 70th Cong. 12-15 (1928) (statement of Dr. Henry Parker Willis, Columbia University).

⁶⁷ Peter Fortune, *Security Loans at Banks and Non-Banks: Regulation U*, NEW ENGLAND ECON. REV. 23 (4th qtr, 2002). A telling anecdote about the view of lenders towards the market is to be found in the documents of New York Fed President George Harrison. He tried to dissuade one bank from using Treasuries to borrow from the Fed in order to invest in the call money market. Harrison was told that bank officials felt entitled to the profit on call loans that came from this arbitrage. “They had pursued a policy with respect to government bonds (which meant much less profit to them than if they had invested their funds in call money rather than in government bonds) believing that when the time came, those government bonds would be eligible for their use with a profit which would compensate them for the loss in subscribing for and carrying the bonds; that that time in his opinion had come . . .” Quoted in FRIEDMAN & SCHWARTZ, *supra* note 65, at 261-62 n35.

Chart 2: Call Money Loans as a Fraction of Previous Year's New Issues

Data from Federal Reserve Banking and Monetary Statistics 1914-1941 (1943)

As borrowers started to pay more than 12% for a loan that was overcollateralized and callable, the conclusion that adverse selection was playing an important role in the market is hard to avoid. The only borrowers for whom this would make sense are those who are already at serious risk of bankruptcy and “gambling for redemption.” One therefore suspects that at least by mid-1929 a substantial segment of the borrowers remaining in the market were either enthralled by the euphoria of rising prices, or simply did not understand the nature of the loans they had taken out to purchase securities. One contemporary commentator explained that the October 1929 financial crash was met in both the domestic and the international community mostly with a sense of relief and an expectation that normalization was around the corner.⁶⁸

Given the extremely advantageous terms of the margin loans for lenders, it is no surprise that funding flowed into the market. These flows were intermediated by the banks through accounts similar to those offered to correspondent banks.⁶⁹ The Senate Report explains, however, that the securities market itself was an important source of the funds flowing into the accounts that invested in the margin loan market:

Where did the “others” thus spoken of obtain their funds? They obtained them, of course, in substantial measure from the public at large through sales of new issues, which rose steadily through this period. In part, also, they were a result of the use of large war-time and post-war earnings . . .

The flow of funds through the hands of the general public into those of the corporations, and from the latter into the hands of brokers and dealers, who then re-lent the funds to the public engaged in speculation, was thus primarily the result of a loose banking policy which had turned from the making of loans on commercial paper to the making of loans on security.⁷⁰

In short, the Report explains that in the latter years of the 1920s an important use of the funds raised by issuing securities was investment in margin loans – that thereby financed additional purchases of securities. Clearly the Senate believed that the stock market bubble of the late 1920s had been inflated by a feedback loop. Although there is no firm data on the identity of the “others” in the call money market, and thus no firm data to support this view, there is testimony from the Pecora Commission that supports

⁶⁸ J.M. Daiger, *Confidence, Credit, Crash: Shall We Guarantee Them in Our Banks?*, HARPERS MAGAZINE 279, 281-82 (Dec. 1, 1932).

⁶⁹ *Operation of the National and Federal Reserve Banking Systems: Hearings pursuant to S. Res. 71 Before a Subcomm. of the S. Comm. on Banking and Currency, 71st Cong.* 1019 (1931).

⁷⁰ S. BANKING ACT REP., *supra* note 64, at 3-4.

the Report's claims.⁷¹ Note, however, that more recent studies have concluded that corporations were relying more on retained earnings than on new securities issues to invest in margin loans.⁷²

The Glass-Steagall Act addresses bank intermediation of non-bank access to the margin loan market. Section 11 of the Act imposes a daily fine of up to \$100 for every violation on any bank that “acts as the medium or agent of any non-banking corporation, partnership, association, business trust, or individual in making loans on the security of stocks, bonds, and other investment securities to brokers or dealers in stocks, bonds, and other investment securities.”⁷³

The Senate Report attributes the remarkable growth of the margin loan market to the fact that over the course of the 1920s commercial banks had entered the business of underwriting securities issues. Using the term “security loans” for call loans, the Report explains:

Banking affiliates.—There seems to be no doubt anywhere that a large factor in the overdevelopment of security loans . . . has been furnished by perversions of the national banking and State banking laws, and that, as a result, machinery has been created which tends toward danger in several directions. . . .⁷⁴

In fact, the commercial banks had not just entered the underwriting business, but had begun to dominate it. While commercial bank securities affiliates played only a small role in underwriting in 1922, by 1927 they were underwriting 22% of total issues and by 1930, 45%.⁷⁵ This data, however, does not convey a fact that contemporaries observed. The business of commercial bank securities underwriting was closely related to having a nationwide correspondent banking network.⁷⁶ Thus, the banks that entered the underwriting business in the 1920s were typically banks that were managing correspondent bank investments in the call money market.

⁷¹ S. REP. NO. 73-1455 at 13-14 (1934).

⁷² Gene Smiley & Richard Keehn, *Margin Purchases, Brokers' Loans, and the Bull Market of the Twenties*, 17 BUS. & ECON. HIST. 129, 137 (1988). They report that Standard Oil had an average of \$87 million out on margin loans through September 1929. *Id.* The fact that much of the growth in the call loan market financed new securities issues – at a time when commercial banks were doubling their market share in underwriting – likely contributed to the view that this activity was part of the problem. *Id.* at 138.

⁷³ Banking Act of 1933, Pub. L. No. 73-66 § 11(a), 48 Stat. 162 (codified as amended at 12 U.S.C. § 374a (2012)). Note that transactions with foreign banks are addressed in Section 10.

⁷⁴ S. BANKING ACT REP., *supra* note 64, at 9-10.

⁷⁵ J.S. Ang & T. Richardson, *The underwriting experience of commercial bank affiliates prior to the Glass-Steagall Act: A reexamination of evidence for passage of the act*, 18 J. BANKING & FIN. 351, 356-57 (1994).

⁷⁶ J.M. Daiger, *Toward Safer and Stronger Banks*, CURRENT HIST. 558, 559 (Feb. 1, 1933). Charles Calomiris also observes that the relationship between correspondent banking and securities affiliates played an important role in the development of Chicago as an investment banking center. Calomiris, *supra* note 9, at 270.

The accusation implicit in the Senate Report on the Glass-Steagall Act is that banks were using the call money market to help place the issues of securities that they were underwriting. This claim was made explicitly in a 1932 speech by Senator Bulkley: “If we are to keep banks from being tempted to make security loans in order to help make a market or to finance the purchase of securities on which the lending bank is making an originating or underwriting commission we must keep banks out of the investment security business.”⁷⁷ It is almost certain that this sentiment informed the sections of the act that prevented commercial banks from underwriting securities and investment banks from offering deposit accounts.

The Report, however, focuses on the feedback loop that, it explains, played an important role in the stock market boom of the late 1920s, and the crash that extended for three years thereafter:

Stock-exchange speculation in excess . . . was an accompaniment or symptom of unsound credit and banking conditions themselves. The facts as to the expansion of such speculation are well known, and its history requires no repetition but the major data, facts, and conclusions may be briefly summarized as including: (1) A steady increase in bank security loans and investments; (2) rising price resulting from the increased resulting demand; (3) a sporadically enlarging volume of stock-exchange operations and new issues made possible by popular enthusiasm thus engendered; and, finally (4) a violently fluctuating course of prices on the stock exchange continuing until the whole structure fell of its own weight, resulting in the sharp downward movement which began in the autumn of 1929 and has been followed by sporadic collapses at various times since.”⁷⁸

Thus, when the Senate Report on the Glass-Steagall bill lays out “specific conditions which stand out as requiring some remedy,” the first such condition is “excessive use of bank credit . . . for excessive carrying of securities with borrowed money.”⁷⁹

While the legislators who passed the Glass-Steagall were acting on the basis of substantial data that indicated that interaction between commercial banking and lending on margin against securities had disrupted asset markets, an important question was not addressed by the Senate’s report: If commercial bank lending on margin loans was so pernicious, why hadn’t similar problems with the margin loan market been observed in the U.S. in the years prior to the establishment of the Federal Reserve?

⁷⁷ Quoted in BENSTON, *supra* note 9, at 127-28.

⁷⁸ S. BANKING ACT REP., *supra* note 64, at 6-7.

⁷⁹ *Id.* at 9.

I speculate here on some possible responses to this question. First, it is possible that initially the call loan market was not treated by banks as an asset class into which investable funds were allocated, but as an interest-bearing venue for the safe-keeping of reserves. In this scenario, the reserves placed by banks in the call loan market were determined by the commercial activities of the banks, and the bank supply of funds to the market would be relatively unresponsive to changes in call loan borrower demand for funds. As long as borrower demand was fairly stable, so that interest rate changes were generally driven by the banking system's need for liquidity, the banks would face little incentive to change such an approach.

Second, it is possible that the New York Clearinghouse, which effectively supervised the New York banks before 1913, was either sufficiently attuned to the dangers of the call loan market that it enforced the approach described above, or that its member banks were sufficiently fearful of falling out of the good graces of the Clearinghouse that they imposed strict conditions on themselves.

Finally, it is also possible that the new channels of selling securities that developed in the 1920s opened the call money market to less sophisticated borrowers, and in the years of the boom adverse selection functioned to amplify their effect on the market. To the degree that in the early decades of the century investment accounts were more likely to belong to high-net worth individuals, the brokers facilitating these accounts may have been more solicitous of the interests of their clients than in later years when brokerage accounts were more broadly available to retail clients. In this scenario, brokers may have encouraged investors to borrow on margin much more in the 1920s than in the earlier decades.

Overall, the Senate Report indicates that the legislators who passed the Glass-Steagall Act concluded that the existing relationship between commercial banking and the stock market in the 1920s and 1930s was dysfunctional, and that they did so on the basis of substantial evidence that commercial bank participation in securities markets had distorted securities market pricing. The Senate Report identifies feedback loops as a source of this distortion, and explains that the call money market of the late 1920s was exhibiting a market failure, even though it could not at the time describe the problem as one of "adverse selection." To reform the relationship between commercial banks and markets, the Glass-Steagall act addressed three capital markets activities: commercial banks and their affiliates could not underwrite non-governmental

securities, they could not deal in such securities, and they could not intermediate non-bank margin lending.⁸⁰

B. The U.S. Reform of the Stock Exchange

The Glass-Steagall Act was designed to address the instability that was generated in the 1920s when the same banks were both underwriting securities issues and offering accounts that financed the purchase of those securities. As was discussed Section I, however, the rules of the stock exchange also played a very important role in the functional separation of banking from capital markets. Thus, the movement from the functional separation of financial activities towards universal banking began in the U.S. with the reform of the rules governing the stock exchange. This took place in two steps: first, corporate membership was permitted on the exchange, and, then, fixed commissions were eliminated.

Because the prohibition on corporate membership in the stock exchange excluded commercial banks from the most liquid securities markets, the first step in the erosion of the traditional separation between commercial and investment banks was taken in 1970 when the New York Stock Exchange allowed members to go public and become corporations. Although this opened the door for commercial banks to own NYSE member firms, bank regulation also had to evolve before commercial bank participation on the exchange became a reality. In 1982 Bank of America Corporation applied to the Federal Reserve for approval to acquire all voting shares of The Charles Schwab Corporation, a discount brokerage and NYSE member firm. Not only did the bank receive approval, but the Federal Reserve's new interpretation of the Glass-Steagall Act was affirmed by the Supreme Court in 1984.⁸¹

The other New York Stock Exchange reform that resulted in major changes to the structure of the investment banking industry was the elimination in 1975 of commissions that were fixed by the rules of the exchange and their replacement by negotiated commissions. The costs of trading plummeted both for those who placed large orders and for retail traders. Almost immediately 250 small brokerage firms went out of business, and dozens more merged into larger firms.⁸² In short, this reform had the effect of

⁸⁰ In addition a bank that borrowed at the discount window and then increased its margin lending could, at the discretion of the Federal Reserve, become ineligible to borrow at the discount window, Banking Act of 1933, Pub. L. No. 73-66 § 9, 48 Stat.162 (codified as amended at 12 U.S.C. § 374 (2012)).

⁸¹ *Sec. Industry Ass'n v. Bd. of Governors of the Fed. Reserve Sys.*, 468 U.S. 207 (1984).

⁸² SOBEL, *supra* note 51, at 369.

favoring large firms that could offer significant discounts to very large accounts or provide services to large numbers of retail traders.

Because negotiated commissions favor large firms, fixed commissions can be viewed as a means of ensuring that entry of broker-dealers into the market is relatively easy and of preventing large firms from dominating the market. Since large firms have more information about trading flows, and thus more opportunities to profit from their asymmetric information, fixed commissions can promote efficiency by ensuring that there is a healthy population of competing market making firms, and by limiting trade on the basis of asymmetric information.

At the time, however, fixed commissions were viewed as a form of anti-competitive price fixing, and any arguments that they were necessary to keep barriers to entry into the business from growing too large and to address problems of asymmetric information were given short shrift. In just over a decade, Britain would apply the same logic to its own exchange.

C. Big Bang: The U.K. Reform of the Stock Exchange

Financial markets were becoming increasingly international over the course of the 1970s and 1980s due to the lifting of exchange controls that had interfered with cross-border investment, to technological innovations that reduced the cost of long-distance communication, and to the growth of portfolio management techniques that emphasized diversification.⁸³ This placed the London Stock Exchange in direct competition with New York financial markets and New York investment banks.

The consolidation of the industry in New York into one dominated by larger and larger banks who could easily provide liquidity to sizable block trades that would have been viewed as too large and too risky a decade earlier, thus, had ramifications for London. As a result of this competition, the Deputy Governor of the Bank of England observed in 1984: “a number of major UK shares were being more heavily traded in New York than in London,” and “some of this activity came from UK fund managers.”⁸⁴ The conclusion was inevitable: in order to be competitive the London Stock Exchange had to be reformed.

⁸³ McMahon, *supra* note 20, at 75-76. See also MICHIE LSE, *supra* note 21, at 435-40.

⁸⁴ McMahon, *supra* note 20, at 77 (“a number of major UK shares were being more heavily traded in New York than in London” “some of this activity came from UK fund managers”).

An important aspect of this reform was the elimination of minimum commissions, which were viewed as anti-competitive by the Thatcher government.⁸⁵ It was predicted that the pressures set off by the elimination of minimum commissions would result in the consolidation of the industry and put a premium on large, well-capitalized firms. The most likely sources of an influx of new capital were the domestic commercial banks and foreign banks. In order to facilitate the provision of this capital, the rules restricting corporate membership and the ownership of an exchange member firm were removed.⁸⁶ Furthermore, few believed the single capacity rule could survive without minimum commissions, so the segregation of brokers and dealers was also eliminated. In short, in one fell swoop all of the rules that underlay the uniquely segregated structure of London financial markets were cleared away on October 27, 1986 in an event called the “Big Bang.” Shortly after the Big Bang, the Financial Services Act replaced the rules of the Exchange with a unified statutory framework for securities regulation in the U.K.⁸⁷

Two immediate effects of the Big Bang were that all stock exchange members switched to the corporate form and most of them became part of a commercial or investment bank.⁸⁸ While the costs of trading fell significantly for large trades, the costs for small investors stayed more or less at the same level they had been before the reform.⁸⁹

A variety of longer term consequences were anticipated by the Bank of England’s Deputy Governor Kit McMahon even before the reforms were adopted. Single capacity had been “an elegant and highly effective means of investor protection,” which “facilitated prudential supervision” and made it easy to maintain high standards of behavior in the market. As a result of its elimination British regulators would have to find “new solutions to the problems of conflicts of interest.”⁹⁰ He was far from confident that reporting and other public disclosure requirements would be sufficient to address these problems.

⁸⁵ Nigel Lawson, *Foreward* at i-ii, in CITY OF LONDON, BIG BANG 20 YEARS ON (2006).

⁸⁶ McMahon, *supra* note 20, at 77. Note that whereas McMahon observed – in 1984 – that “the removal of minimum commissions therefore gave rise to pressure for the removal of the institutional demarcation, not just between principals and brokers, but also between banks and broker-dealers,” Lord Lawson would later remark that the end of the separation between merchant (i.e. investment) and high-street (i.e. commercial) banks was something he didn’t “give a great deal of thought to at the time” and that it was an “unforeseen consequence” of the Big Bang. Edward Stourton, *supra* note 20, at 7:57 min.

⁸⁷ Financial Services Act 1986 (U.K.).

⁸⁸ Ingram, *supra* note 27, at 55. See also Mark Whitehouse, ‘Big Bang’ Pioneers Rethink Banking Overhaul, WALL ST. J., Mar. 31, 2009, <http://online.wsj.com/article/SB123844838879571027.html>; *London Insiders Remember Big Bang*, BBC NEWS, Oct. 26, 2006, <http://news.bbc.co.uk/2/hi/business/6081314.stm>.

⁸⁹ Ingram, *supra* note 27, at 59; Loehnis, *supra* note 22, at 94.

⁹⁰ McMahon, *supra* note 20, at 77. See also Loehnis, *supra* note 22, at 91.

Deputy Governor McMahon also remarked that with the consolidation of the industry into universal banks, contagion was likely to be a much greater problem in the future as a failure in one market was much more likely to “contaminate” participants in other markets.⁹¹ Most remarkably, he also recognized – in 1984 – that finance was losing its character as an industry that facilitates the development of other industries and was “becoming a self-sustaining industry on its own . . . One may wonder how far this process can or should go.”⁹²

D. The Growth of Universal Banking

The abrupt switch that took place in London from a financial system that was characterized by functional separation to one that was very quickly heading towards a universal banking model raised serious concerns in the United States about the competitiveness of the financial sector. Within a year the Congressional Research Service would issue a report studying the repeal of the Glass-Steagall Act,⁹³ and the academic discussion of the issue which had started by the late 1970s would grow over the course of the next decade.

Jonathan Macey, for example, argued that the Glass-Steagall Act’s “ostensible legislative intent” of protecting the safety and soundness of the banking system, in part by prohibiting securities-related conflicts of interest, did not hold up to scrutiny, and concluded that the Act must, therefore, have been special interest legislation – designed to promote the interests of the investment banks.⁹⁴ Macey is correct that, despite political posturing that promoted the Act as a solution to the banking failures that were paralyzing the country,⁹⁵ the sections of the Act addressing the separation of commercial and investment banking were not well-targeted to address this problem. The claim that the only explanation for its passage must therefore have been special interest legislation is, however, unconvincing – especially as the 1929 stock market collapse hardly served to give the investment bankers political influence.⁹⁶ Instead, as

⁹¹ McMahon, *supra* note 20, at 78.

⁹² McMahon, *supra* note 20, at 78.

⁹³ CONGRESSIONAL RESEARCH SERVICE, GLASS-STEAGALL ACT: COMMERCIAL VS. INVESTMENT BANKING 1, IB87061 (1987).

⁹⁴ Jonathan Macey, *Special Interest Groups Legislation and the Judicial Function: The Dilemma of Glass-Steagall*, 33 EMORY L.J. 1, 2, 13 (1984).

⁹⁵ See S. BANKING ACT REP., *supra* note 64, at 5-6.

⁹⁶ Arthur Wilmarth, *Did Universal Banks Play a Significant Role in the U.S. Economy's Boom-and-Bust Cycle of 1921-33? A Preliminary Assessment*, 4 CURRENT DEV. IN MONETARY & FIN. L. 559, 586 (2005). Indeed, when Perkins notes that the investment bankers’ silence probably indicated tacit approval of the bill, he does so in the context of reporting on an effort to tar the bill with inadvertently serving the interests of the investment bankers by reversing changes that had destroyed the “money trust.” Perkins, *supra* note 33, at 516-17.

was discussed above in subsection IV.A, the Glass-Steagall Act is best understood as Carter Glass's effort to protect the soundness of the financial system, and the stock market in particular, by establishing firewalls that would ensure that the credit created by the banking system could not be used to distort stock and bond market prices. In short, although the Senate Report presented the Glass-Steagall bill as a means of addressing the immediate banking crisis – presumably in order to secure the support necessary to enact it – the actual goal that Senator Glass was seeking to achieve was the protection of the financial system as a whole, and the capital markets in particular.

As a result of the confusion over the purpose of the bill that was created by the legislators themselves as they sought its passage, many analyses of the Glass-Steagall Act fail to understand either the goals or the effect of the bill. The goals are typically framed, as they were by Macey – who based his analysis on a 1971 Supreme Court case⁹⁷ – as, first, to promote the safety and soundness of the banking system and, second, to protect bank customers by preventing banks from taking advantage of conflicts of interest created by securities dealing.⁹⁸

A large segment of the literature interpreted the “conflict of interest” argument to imply that securities underwritten by commercial bank securities affiliates were of lower quality than those issued by investment banks. This literature generally shows that there was not statistical difference between the performance of securities underwritten by the two types of banks, and is then interpreted to mean that there is no evidence of conflicts of interest.⁹⁹ On the other hand, those papers that analyze separately the securities underwritten by “rogue” commercial bank securities affiliates that were subject to scathing criticism in the 1930s have found that these securities did indeed perform worse than those issued by the affiliates of the non-“rogue” banks.¹⁰⁰ A fact that is rarely noted is that these “rogue” banks went from making up 33% of the underwriting by commercial bank affiliates in 1926 to 67% in 1928 and 81% in 1929.¹⁰¹ Furthermore, as Arthur Wilmarth observes, it's far from clear that these comparisons of the quality of securities capture the concerns raised by Congress in the 1930s over conflicts of interest.¹⁰² After all, an alternative hypothesis is that in the absence of competition from conflicted commercial bank

⁹⁷ *Investment Co. Inst. v. Camp*, 401 U.S. 617 (1971).

⁹⁸ See, e.g., Calomiris, *supra* note 9, at 272-73. See also Wilmarth, *supra* note 96, at 585, 591 et seq.

⁹⁹ See, e.g., Randall Kroszner & Raghuram Rajan, *Is the Glass-Steagall Act Justified? A Study of the U.S. Experience with Universal Banking before 1933*, 84 AM. ECON. R. 810 (1994); Ang & Richardson, *supra* note 75.

¹⁰⁰ Manju Puri, *The Long-Term Default Performance of Bank Underwritten Security Issues*, 18 J. BANKING & FIN. 397, 409 (1994); Ang & Richardson, *supra* note 75.

¹⁰¹ Data from Ang & Richardson, *supra* note 75, at 387-89.

¹⁰² Wilmarth, *supra* note 96, at 606.

securities affiliates, the securities underwritten by investment banks would have been of higher quality than they were in the presence of that competition.

Overall, almost none of the broad literature evaluating the Glass-Steagall Act recognizes that one of its goals was to protect capital markets from banks, and therefore this literature fails to address the advantages of the Glass-Steagall Act that are raised in this paper. George Benston's book on the separation of commercial and investment banking is an exception to this generality.

In a chapter titled, *Securities Services: Improper Banking*, Benston presents the argument that commercial bank securities activities had the effect of increasing securities prices. He gives short shrift to this view, however, in part because he discounts as implausible the possibility that bank credit could affect securities prices, and in part, because, "the Glass-Steagall Act does not prevent banks from lending to securities brokers or purchasers."¹⁰³ The latter point ignores, first, that Section 9 of the Glass-Steagall Act explicitly authorizes the Federal Reserve to curtail all lending to a bank that increases security-based loans after the Fed has cautioned the bank, second, that the data presented in Section III.A of this article demonstrates that the Federal Reserve's jawboning in the late 1920s was effective at keeping aggregate bank lending to brokers from growing, and, third, that the Act imposes a stiff fine on any member bank that intermediates access by non-banks to the call money market – and this is the part of the market that was viewed by legislators as most pernicious in the late 1920s. Finally Benston observes, that the Act did not restore confidence in securities markets, which were moribund through the 1930s.¹⁰⁴ This, however, begs the question. If the Act laid the foundations that made it possible for securities markets to recover in later decades, then the Act served its purpose.

In short, few of the proponents of repealing the Glass-Steagall Act acknowledged the concerns voiced in the Senate Report on the Act about the dangers of feedback loops between commercial banks, the call money market, and capital markets that could distort securities prices, and those who acknowledged these concerns, treated them dismissively.

¹⁰³ BENSTON, *supra* note 9, at 125.

¹⁰⁴ *Id.*

In this intellectual environment bank regulators too embraced the view that the Glass-Steagall Act was largely outdated and was restraining commercial banks' ability to compete in financial markets.¹⁰⁵ Thus, in December 1986 the Federal Reserve interpreted the Act to permit bank holding companies to establish subsidiaries that underwrote securities as long as the revenues from underwriting "ineligible" securities remained below 5%.¹⁰⁶ The revenue cap would be raised to 10% in 1989 and then to 25% in 1996.¹⁰⁷

Not only was underwriting of securities deemed to be permitted as long as the revenue cap was not breached, but in 1989 dealing in securities was also approved – subject to the revenue cap.¹⁰⁸

Furthermore, with the birth of the tri-party repo market, bank intermediation of non-bank margin loans also began to grow in the mid-1980s.¹⁰⁹ Presumably the reason the tri-party repo market was not viewed as violating the 1933 prohibition on such intermediation is that margin loans on this market take the form of sales and repurchases. In short, by the time the provisions of the Glass-Steagall Act that prohibited commercial banks from underwriting and dealing in securities were repealed in 1999, regulatory decisions already permitted commercial bank affiliates to engage in the full range of capital markets activities.

Now that reform of both stock exchange rules and financial legislation has eliminated the barriers to universal banking that delimited finance in both the U.K. and the U.S. through the 19th and much of the 20th century, the financial sector in the U.S. and has grown increasingly concentrated, so that it is now dominated by just a few very large banks. The ratio of the assets of the three largest FDIC-insured depository institutions in the U.S. to the assets of the commercial banking system as a whole hovered around 10% from the 1930s through the late 1980s, but increased steadily for two decades and in 2007 was greater than 40%.¹¹⁰ In the U.K. the comparable ratio was approaching 80% in 2007.¹¹¹

¹⁰⁵ *Hearing on the Federal Reserve Proposals to Modify the Firewalls that Separate Commercial Banks and Their Securities Affiliates Before the Subcomm. on Fin. Insts. and Regulatory Relief of the S. Comm. on Banking, Housing & Urban Affairs*, 105th Cong. 3 (1997) (statement of Susan Phillips, Board of Governors of the Federal Reserve).

¹⁰⁶ Loretta Mester, *Repealing Glass-Steagall*, FED. RES. BANK OF PHILA. BUS. REV. 5 (July/August 1996).

¹⁰⁷ Simon Kwan, *Cracking the Glass-Steagall Barriers*, FED. RES. BANK OF S.F. ECON. LETTER 97-08, Mar. 21, 1997.

¹⁰⁸ Mester, *supra* note 106, at 17.

¹⁰⁹ Scott Skyrms, *10 Events that Changed the Repo Market*, Scott Skyrms Blog, (Oct. 1, 2013), <http://scottskyrms.com/2013/10/10-events-that-changed-the-repo-market/>. See also Letter from Richard Gregg, Commissioner of the Bureau of the Public Debt to Owen Carney, Office of the Comptroller of the Currency (May 7, 1990), https://www.treasurydirect.gov/instit/statreg/gsareg/gsareg_gsr033i.htm.

¹¹⁰ Andrew Haldane, Exec. Dir. Fin. Stability, Bank of England, Speech: The \$100 Billion Question 9, 26 (Mar. 30, 2010).

¹¹¹ Andrew Haldane, Exec. Dir. Fin. Stability, Bank of England, Speech: On Being the Right Size 14 (Oct. 25, 2012).

At the end of 2007, there were three FDIC-insured commercial banks in the U.S. with assets in excess of \$1 trillion. They were J.P. Morgan Chase Bank, Bank of America, and Citibank. Each of these commercial banks has an affiliated broker-dealer, and their names frequently show up in the top 10 when league tables of capital market services are tabulated.

V. CONSEQUENCES OF THE MOVEMENT TO UNIVERSAL BANKING

The preceding sections of the paper indicate that a movement towards universal banking is likely to be associated with: (i) a decline in the importance of public securities markets as “dark” markets are more profitable environments for universal banks; (ii) a rise in errors of judgment by financial institutions that have systemic implications; and (iii) asset price bubbles that arise alongside the provision of funding for margin lending by commercial banks. This section addresses these three issues in U.S. markets under universal banking.

A. The Growth of “Dark” Markets

From the late 1980s, as the biggest U.S. banks were growing into universal banks, a market in financial contracts called swaps was also growing. Swaps all fall within the broad category of derivatives, as the value of a swap “derives” from the value of another financial contract, such as a stock or a bond. Because early on the most important forms of swap contracts were interest rate swaps and foreign currency swaps, and these swap contracts derive their prices from Treasury obligations and currencies respectively, commercial banks were allowed to trade them, and indeed were from the very beginning some of the most important participants in the swaps market.

Interest rate swaps allow one party to the contract to pay a fixed interest rate – based on a Treasury – and receive a short term floating market interest rate on a periodic basis, while the other party receives fixed and pays floating. As a rule, at the date that a swap is issued its terms are designed so that expected value of both parties’ payment streams is the same and the market value of the swap is \$0. Over time interest rates move and the value of the swap will typically turn positive for one party and negative for the other. This structure means that the market value of an interest rate swap is a tiny fraction of the value of the Treasury contracts on which the swap is based. The latter value, called the notional value, does not fluctuate and is easier to tabulate; for this reason, the size of the market is often measured by its notional

value, not its market value.¹¹² In a currency swap one party makes periodic payments in one currency and the other party makes periodic payments in a different currency.

The swaps market started small and it was based on contracts without uniform terms, so in its early days it was very illiquid and only suited for trading on OTC markets. The market however grew by leaps and bounds in the 1980s, because interest rate swaps became one of the primary methods by which commercial banks managed the interest rate risk that the banking crisis of the 1980s brought to everyone's attention. At the end of 1986, swap contracts on \$313 billion in Treasuries and currencies were outstanding.¹¹³ By 1990 the notional value of contracts outstanding had reached \$3.4 trillion.¹¹⁴

Swaps did not fall clearly within any of the existing categories of financial contracts. They were apparently exempt as Treasury-based or currency-based contracts from the Commodities Futures Trading Commission's (CFTC's) jurisdiction over contracts for future delivery.¹¹⁵ Furthermore, the definition of a security is extremely broad, but sufficiently ambiguous, that it was neither clear that these swaps should be considered securities and subject to the jurisdiction of the Securities and Exchange Commission (SEC), nor that they were not securities. For the most part, however, regulators apparently viewed the utility of these swaps as sufficiently great, that for many years they simply allowed swaps to fall within a legal grey area.

The indefinite status of swaps is important, because the industry quickly realized that some of the privileges granted to regulated securities and regulated futures contracts were very desirable. In particular, in order to facilitate the clearing of contracts that were either exchange-traded or otherwise subject to regulation through a self-regulatory organization supervised by the SEC, the contracts were exempt from several provisions of the Bankruptcy Code.¹¹⁶ There is little doubt that the industry could have formed a national self-regulatory organization for swaps, sought for the contracts to be treated as securities,

¹¹² One cannot help but wonder whether this norm is also a reflection of the fact that these products trade on dark over the counter markets, so valuation is more difficult because prices are not public and the contracts are somewhat illiquid.

¹¹³ *American Bankruptcy Institute Survey: Hearing on S. 1626, S. 1358, S. 1863, and S. 2279 Before the Subcomm. on Courts and Admin. Practice of the S. Comm. on the Judiciary*, 100th Cong. 675 (1988) (statement of International Swap Dealers Association in Support of S.2279) [hereinafter ISDA statement].

¹¹⁴ ISDA data.

¹¹⁵ Commodities Exchange Act § 2(a)(1)(A)(ii), 7 U.S.C. 2(ii) (2012).

¹¹⁶ Bankruptcy Reform Act of 1978, Pub. L. No. 95-598, §§ 362(b)(6), 548(d)(2)(B), 1978 U.S.C.C.A.N. (92 Stat.) 2549; Act of July 27, 1982, Pub. L. No. 97-222, §§ 1, et seq., 96 Stat. 235 (codified as amended at various provisions of Title 11 of the United States Code).

registered the self-regulatory organization with the SEC, and, thereby, gained access to the existing protections for securities contracts under the Bankruptcy Code.

The swaps dealing banks chose a very different path.¹¹⁷ In 1985 the International Swaps Dealers Association (later changed to the International Swaps and Derivatives Association) (ISDA) was formed by the ten largest swaps dealers, who accounted for approximately 80% of the market at the time.¹¹⁸ One bank, Kleinwort Benson, was British, the rest were American. Six of the U.S. banks were investment banks, First Boston, Goldman Sachs, Merrill Lynch, Morgan Stanley, Salomon Brothers, and Shearson Lehman Brothers, and three were commercial banks, Citicorp, Morgan Guaranty Trust, and Bankers Trust. (These commercial banks were the first, fourth, and seventh largest banks in the country respectively in December 1985.)¹¹⁹ As described at its founding, the purpose of the organization was to standardize documentation and practices and to serve as a forum to “explore the accounting and regulatory implications” of the swaps.¹²⁰ In short, the organization served many of the same functions as that of a self-regulatory organization, except that it was an international organization and, initially, restricted its membership to the largest dealers.

That the ISDA was effectively a self-regulatory organization, comparable to, for example, the National Association of Securities Dealers, is confirmed by Sean Flanagan, who interviewed for his note several of the ISDA’s principals including almost all the individuals who served as the organization’s executive director from the time of its founding. He writes: “ISDA has played a key role in keeping the OTC derivatives industry self-regulated. It has coordinated industry opposition to CFTC and SEC regulation, acting both as an advocate for the industry and as an instrument for its self-regulation. ISDA has also lobbied successfully to get legislation passed in the U.S. . . .”¹²¹ This indicates not only that one objective of the ISDA was to keep swaps unregulated, but also that lobbying for legislation and regulatory decisions that were favorable to its members was another important goal. In fact, as early as 1988 the

¹¹⁷ I first made this argument in Carolyn Sissoko, *The Legal Foundations of Financial Collapse*, 2 J. FIN. ECON. POL’Y 5 (2010).

¹¹⁸ Frank Partnoy argues persuasively that the ISDA was initially formed to lobby the Financial Accounting Standards Board to permit off-balance sheet treatment of the swaps. FRANK PARTNOY, *INFECTIOUS GREED* 46 (2003).

¹¹⁹ Call report data, *available at*

http://www.chicagofed.org/webpages/banking/financial_institution_reports/commercial_bank_data.cfm.

¹²⁰ John Forde, *Big Firms Involved In Rate Swaps Form Dealers Association*, THE BOND BUYER, Mar. 8, 1985.

¹²¹ Note, Sean Flanagan, *Rise of a Trade Association: Group Interactions within the International Swaps and Derivatives Association*, 6 HARV. NEGOTIATION L. REV. 211, 246 (2001).

ISDA was representing to Congress that one of its core purposes was “the representation of the common interests of its members before legislative and administrative bodies.”¹²²

In short, there is good reason to believe that from the beginning the objective of the organization was not to bring swaps under the regulatory umbrella, but to keep them outside regulated markets. A likely motivation for this objective is the profitability to dealers of trading financial contracts on an OTC basis, as was discussed in Section III. One of the first tasks on the ISDA’s agenda was to get legislation passed that would give swaps the privileges accorded to regulated financial contracts, while at the same time avoiding the burdens of regulation – and the presumption that large markets in standardized financial contracts should be exchange-traded.¹²³

In 1990, five years after the founding of the ISDA, the legal foundations for the unregulated OTC derivatives market were laid, when swaps, despite their unregulated status, were granted the same privileges in bankruptcy as regulated securities and regulated futures contracts.¹²⁴ This legislation effectively legitimized an OTC market in unregulated financial instruments.¹²⁵ The commercial bank members of the ISDA actively supported this amendment.¹²⁶ The ISDA played a significant role in the passage of this legislation and was described at the time as having “requested and supported” it.¹²⁷

¹²² ISDA Statement, *supra* note 113, at 688.

¹²³ *See id.*

¹²⁴ Act of June 25, 1990, Pub. L. No. 101-311, §§ 101, et seq., 104 Stat. 267 (codified at various sections of Title 11 of the United States Code). This act added § 560 to the Bankruptcy Code.

¹²⁵ The swaps market should be distinguished from repurchase agreements and bank-based financial instruments. The key difference is that the ISDA sought to, and succeeded in, turning swaps into a market-traded instrument. One traditional reason why repurchase agreements and bank-based financial instruments receive different treatment from exchange-traded instruments is that they are usually bi-lateral agreements, and not suited to market trading or regulation.

¹²⁶ *American Bankruptcy Institute Survey: Hearing on S. 1626, S. 1358, S. 1863, and S. 2279 Before the S. Subcomm. on Courts and Administrative Practice of the S. Comm. on the Judiciary*, 100th Cong. 661-66 (1988) (Statement of Richard Kezer, Chairman of the Public Securities Association and Division Executive at Citicorp Investment Bank); *American Bankruptcy Institute Survey: Hearing on S. 1626, S. 1358, S. 1863, and S. 2279 Before the S. Subcomm. on Courts and Administrative Practice of the S. Comm. on the Judiciary*, 100th Cong. 691-93 (1988) (Statement of the New York Clearing House Association)[hereinafter NYCHA Statement]. The latter statement notes that the NYCHA is composed of twelve leading commercial banks, nine of which are also members of the ISDA.

¹²⁷ NYCHA Statement, *supra* note 126, at 692. The ISDA describes itself as having “actively participated in the enactment of the 1990 amendments to the Bankruptcy Code.” ISDA Amicus Brief, *BNY Corp. Trustee Services Ltd. v. Lehman Bros. Specialty Financing*, No. M 47 (CM), (In re Lehman) Nov. 1, 2010 (SDNY Bankr.) at 4; ISDA Amicus Brief, *Swedbank, AB v. Lehman Bros. Holding Inc.*, No. 10-cv-04532 (NRB), (In re Lehman) July 14, 2010 (SDNY) at 3.

Over subsequent decades, the ISDA worked to turn swaps into a genuine market with standardized agreements and market-like pricing. The fact that it remained for decades an OTC market meant, however, that the dealer banks retained ownership of market data including market prices, which even today are only made public on a very limited basis.

At the same time that it built the market for interest rate and currency swaps, the ISDA worked actively to expand the scope of the OTC swaps markets, and to ensure that this expanded market would also remain unregulated. In the early years of the 21st century, after regulatory and legislative actions that severely constrained the ability of regulators to study and supervise the market in OTC swaps, the market for bond- and equity-based swaps grew quickly. These instruments allow traders to simulate the returns of securities that are regulated, while at the same time avoiding any obligations that regulation would impose on the owner of the security. Only after the financial crisis of 2007-08 has regulation been extended to cover these instruments.

Large dealers on OTC markets, because their position gives them a privileged view of market data, are able to reap profits from their information advantage, as was discussed in Section III above. The OTC derivatives markets are no exception. As the President of the Federal Reserve Bank of New York explained:

OTC derivatives dealers have natural incentives to favor opaque, decentralized markets that preserve their information advantage relative to other participants. The greater profit margins that derive from this advantage create incentives to favor more bespoke OTC derivatives over more standardized OTC instruments.¹²⁸

Such profits may have the effect of entrenching the dealers' position in the market by making entry of a new competitor very difficult.

If in fact the ability to trade on "dark" OTC markets did give the founding members of the ISDA an information-based anti-competitive advantage, then we would expect that the same firms that were dominant in 1985 would still be the biggest players in derivatives markets in 2014. This is, in fact, the case.

¹²⁸ William Dudley, President of the Fed. Reserve Bank of New York, Remarks at the Council of Society Business Economists Annual Dinner: London: The Longer-Term Challenges Ahead (Mar. 11, 2010).

In the United States about 95% of total bank holding company derivatives are accounted for by just five bank holding companies.¹²⁹ These holding companies are, in order: JPMorgan Chase & Co., Citigroup Inc., Goldman Sachs Group Inc., Bank of America Corporation, and Morgan Stanley.

Remarkably, aside from those founding ISDA members that were taken over by foreign banks and therefore do not report to U.S. regulators¹³⁰ and one bank that failed,¹³¹ the list of founding ISDA members and list of current major players in derivatives are the same:¹³² JPMorgan Chase & Co is Morgan Guaranty Trust with a few commercial banks added on over the years; Citigroup is a conglomerate that includes Citicorp, Salomon Bros., and the Shearson part of Shearson Lehman; Goldman Sachs incorporated, but is otherwise the same firm; Bank of America purchased Merrill Lynch; and the last is Morgan Stanley. In short, over the course of thirty years the only changes that have taken place in the identities of dealers on the OTC derivatives market in the U.S. are, first, that a couple of firms have moved abroad and, second, that seven firms have been reduced to five.

By the time the ISDA was founded there was already a strong movement towards universal banking in U.K. and U.S. markets. At the end of 1984, the outlines of Britain's Big Bang were already drawn and only the details were left to be worked out.¹³³ The debate over the Glass-Steagall Act had already been engaged in the U.S.,¹³⁴ and the commercial banks undoubtedly had strong hopes that it was just a matter of time before the same forces that revolutionized the British financial system would be successful here.¹³⁵ By December 1986, the Federal Reserve had already taken a very large first step towards universal banking when it interpreted the Glass-Steagall Act to permit limited securities activities by commercial bank affiliates.¹³⁶ This first step was almost immediately followed by a relaxation of the limitations on securities activities. As many have noted, by the time the separation between commercial and investment banks was formally repealed in the U.S. in 1999, it had already been largely eliminated by

¹²⁹ OFFICE OF THE COMPTROLLER OF THE CURRENCY, QUARTERLY REPORT ON BANK TRADING AND DERIVATIVES ACTIVITIES, Table 2 (1st Q. 2014).

¹³⁰ Kleinwort Benson was bought by Dresdner Bank, First Boston by Credit Suisse, and Bankers Trust by Deutsche Bank.

¹³¹ Lehman Brothers was spun off of Shearson Lehman in 1994, before Shearson merged with Citigroup as part of Travelers.

¹³² See PARTNOY, *supra* note 118, at 47.

¹³³ See McMahon, *supra* note 20.

¹³⁴ See DEREGULATION OF THE BANKING AND THE SECURITIES INDUSTRIES, *supra* note 5.

¹³⁵ Frank Partnoy observes that one commercial banker was quoted in a newspaper article in 1982 saying: "We're hoping to see some break in Glass-Steagall." PARTNOY, *supra* note 118, at 44, *quoting* Robert Garsson, *Sanford named Bankers Trust's next president*, AMERICAN BANKER, June 17, 1982.

¹³⁶ See *supra* note 106, and accompanying text.

regulatory action.¹³⁷ In short, by the time the ISDA had started lobbying aggressively to extend the privileges that were granted to regulated financial contracts to OTC swaps in the late 1980s, the U.S. had already set out on the path to universal banking.

Thus, the growth of universal banking in the U.S. was accompanied by aggressive lobbying by the nascent universal banks and the ISDA for formal recognition of an unregulated market in an important financial instrument. The fact that these commercial banks with universal aspirations used their political influence to lay the foundations for an extremely important “dark” financial market may be understood as a natural consequence of universal banking. While it is true that numerically the commercial banks were a minority of the ISDA’s founding members, it’s hard to imagine that a group of investment banks seeking to foster dark markets would have met with the same success before Congress and the regulators that the unified front of this commercial-investment banking nexus was able to achieve.

B. Errors that Grow to Massive Size and Distort Markets

The fact that a financial system with universal banking will typically have financial markets that are not just dominated by universal banks, but dominated by large universal banks, was explained in Section III. Also explained in Section III was the problem that large universal banks may let their errors grow to match their own size, and that, as a result, a single dealer’s error in judgment is more likely to have systemic effects in a universal banking system than in a financial system where commercial banks cannot be dealers. In this subsection, I discuss two examples of universal bank errors in judgment that either had systemic effects or risked having systemic effects: Citibank’s and UBS’s massive subprime mortgage exposure that was revealed in 2007, and the case of JPMorgan Chase Bank’s “London whale” trade.

Citibank and UBS both took on subprime mortgage exposure in the form of the safest or “super senior” tranches of collateralized debt obligations (CDOs). Collateralized debt obligations package a large number of debts together and then create a capital structure for the package and sell a first-loss tranche, called equity, several different tiers of subordinated claims which purport to make fixed payments over time, and a very large last-loss tier that also promises to make fixed payments and is protected from loss by all the subordinated claims. This last-loss tier is the “super senior” tranche. The term “super senior”

¹³⁷ The fact that the Citigroup-Travelers merger took place before the repeal only serves to emphasize this point.

was meant to indicate that these tranches lay so high up in the capital structure of the CDO that they were safer than AAA debt.¹³⁸

However, because the particular CDOs to which Citibank and UBS were exposed packaged together debt that was itself subordinated tranches of other securitized assets, any chart of the full range of the super senior CDOs' potential payoffs would show that these assets had "cliff risk." In other words, they would perform very well under many scenarios, but when the level of defaults passed a certain threshold their value would drop relatively quickly to zero.¹³⁹ The underlying assets were mostly mortgage related, and neither of these banks "was very concerned about housing market risks."¹⁴⁰ Thus, both of them assumed that there was almost no probability that the cliff would be reached, which implied that the returns paid by taking on this exposure constituted a free lunch. Each bank ended up with more than \$50 billion of such CDO exposure.¹⁴¹

Because these big banks were willing to take on so much exposure to subprime mortgages in the form of super senior CDOs, they made the formation of the CDOs to which they were exposed possible and almost certainly affected the price of the underlying securitizations as well. Furthermore, both the CDOs and the underlying securitizations were not composed entirely of actual assets, but in part of swaps that promised the same payments as specific assets. In these swaps one party, the protection buyer, made a periodic payment (simulating interest) in exchange for the other party, the protection seller, making a lump sum payment in the event that the referenced asset went into default (simulating a loss of principal).

As a result of this structure, the willingness of the big banks to take on massive exposure to subprime mortgages didn't just make the formation of CDOs and securitizations possible, it also made available a supply of protection against a fall in value of subprime mortgages and related assets. This supply of protection kept the costs of buying such protection from rising too much, even as demand for it was increasing due to growing skepticism about the health of the subprime mortgage market.

¹³⁸ Marketing materials in fact sometimes referred to them as AAAA securities. See, e.g., Stephanie Mathern, CDOs: Finding Value in a Challenging Environment 36 (Mar. 6, 2003) (Bear Stearns presentation at Austrian Securitization Forum).

¹³⁹ See NOMURA FIXED INCOME RESEARCH, CDOs-SQUARED DEMYSTIFIED (2005).

¹⁴⁰ FIN. CRISIS INQUIRY COMM'N, FINANCIAL CRISIS INQUIRY REPORT 262 (2011) [hereinafter FCIC REPORT].

¹⁴¹ *Id.* at 260; UBS AG, SHAREHOLDER REPORT ON UBS' WRITEDOWNS 15 (2008) [hereinafter UBS REPORT]. Merrill Lynch also had \$50 billion in similar exposure. FCIC REPORT, *supra* note 140, at 259.

Overall, Citibank and UBS erred, believing that the super senior tranches of CDOs were underpriced and that selling this protection against subprime mortgage defaults was an arbitrage opportunity. Because these banks were so big, they were able to take on a vast amount of exposure to subprime default risk. Thus, the errors of these two banks kept the price of buying protection against subprime defaults from rising quickly in late 2006 and 2007 as the demand for protection increased and more and more traders sought to take a short position on the performance of subprime mortgages.

Overall, this error in judgment distorted the market for subprime mortgage CDOs and for protection against the default of subprime mortgage securitizations in a way that would not have been possible for smaller firms that could not possibly carry \$50 billion of exposure to anything. Subprime mortgage defaults did, in fact, exceed all expectations, and as a result these CDOs performed extremely poorly, forcing each bank to take at least \$12 – 14 billion in losses.¹⁴² Thus, not only did this error distort the market, but it also imposed significant losses on some of the world's most important financial institutions. These losses played a role in the systemic crisis of 2007 and 2008.

More recently the story of J.P. Morgan Chase Bank's losses on an index contract, the CDX.NA.IG.9, that is a basket of swaps protecting against default on investment grade corporations, illustrates that universal bank errors can distort the market and cause the bank to incur significant losses without causing a systemic crisis. Hedge funds had observed unusual price action in the contract and attempted to arbitrage it.¹⁴³ They were too small relative to the bank, however, to successfully arbitrage the price differential.¹⁴⁴

¹⁴² UBS REPORT, *supra* note 141, at 4, 7; Bradley Keoun, Jesse Westbrook and Ian Katz, *Citigroup 'Liquidity Puts' Draw Scrutiny From Crisis Inquiry*, BLOOMBERG, Apr. 13, 2010. I am not aware of any more recent tabulations of aggregate losses on these positions.

¹⁴³ Gregory Zuckerman & Katy Burne, *'London Whale' Rattles Debt Market*, WALL ST. J., Apr. 6, 2012, <http://online.wsj.com/article/SB10001424052702303299604577326031119412436.html>.

¹⁴⁴ Stephanie Ruhle, Bradley Keoun & Mary Childs, *JPMorgan Trader's Positions Said To Distort Credit Indexes*, BLOOMBERG, Apr. 6, 2012, <http://www.bloomberg.com/news/2012-04-05/jpmorgan-trader-iksil-s-heft-is-said-to-distort-credit-indexes.html>; Carrick Mollenkamp and Cezary Podkul, *Insight: JPMorgan Bets Sent False Signals to Wider Debt Market*, REUTERS, June 14, 2012, <http://www.reuters.com/article/2012/06/14/us-jpmorgan-trades-idUSBRE85D05L20120614>.

Chart 1: CDX.NA.IG Volume Outstanding Data

From: Lisa Pollack, *Thar She Blows*, FT Alphaville Blog, Apr. 18, 2012, <http://ftalphaville.ft.com/2012/04/18/965141/thar-she-blows/>.

The term, the “London whale,” is an expression of these arbitrageurs’ frustration with their inability to affect a price that was obviously inefficient. Charts 1 and 2 depict the volume and price effect of the “London whale.” In Chart 1, we see the volume outstanding of generations 9 through 18 of the CDX.NA.IG contract and their total volume on the right axis. In general, investors prefer the most current generation of the contract, and in this chart the “roll” from generation 10, to 11, to 12, etc. is visible.

Clearly, however, the CDX.NA.IG.9 trades differently from the other generations of the contract. Starting towards the end of 2011, we see the effect of the London whale on the volume of the CDX.NA.IG.9. By April 2012, the volume of this contract outstanding had increased by more than 75%. The price effect of this activity is equally visible in Chart 2. Given that related markets did not have similar dramatic price movements, it doesn’t take a financial sophisticate to see that there was an arbitrage opportunity here.

Chart 2: CDX.NA.IG.9 Price Data

From: Lisa Pollack, *Two Billion Dollar 'Hedge,'* FT Alphaville Blog, May 14, 2012, <http://ftalphaville.ft.com/2012/05/14/998601/two-billion-dollar-hedge/>.

Jamie Dimon, the bank's CEO would later describe the bank's huge position in the contract as an "egregious" mistake.¹⁴⁵ J.P. Morgan Chase's report on the incident discloses a variety of modeling errors, including, for example, dividing by the sum rather than the average of two figures.¹⁴⁶ These errors

¹⁴⁵ Matt Levine, *Whale Sushi On The Menu At JPMorgan Executive Lunchroom For Next Few Months*, DEALBREAKER, May 10, 2012, <http://dealbreaker.com/2012/05/whale-sushi-on-the-menu-at-jpmorgan-executive-lunchroom-for-next-few-months/>; Dawn Kopecki & Max Abelson, *Dimon Fortress Breached as Push From Hedges to Bets Blows Up*, BLOOMBERG, May 14, 2012, <http://www.bloomberg.com/news/print/2012-05-14/dimon-fortress-breached-as-push-from-hedging-to-betting-blows-up.html>.

¹⁴⁶ JPMORGAN CHASE & CO. MANAGEMENT TASK FORCE REGARDING 2012 CIO LOSSES, REPORT 128 (Jan. 16, 2013) [hereinafter JPM REPORT].

resulted in underestimation of the risk of the trade.¹⁴⁷ The trade and the growing losses on it were not, however, brought to the attention of J.P. Morgan's senior management until the day before news articles discussing it were to be published.¹⁴⁸ While J.P. Morgan Chase appears to be large enough to survive these multi-billion dollar losses, this is an example of how the error of an extremely large bank can be allowed to fester until it become large enough to adversely affect the financial results of the very large bank. Even though this incident did not have systemic consequences, it distorted pricing on the market for this contract for months. Thus, despite the absence of systemic harm, this incident was significant enough to affect everyone who traded in or held the contract during the time period in question.

Overall we see that when big banks err, they may allow their mistakes to grow into big mistakes before addressing them. These big mistakes sometimes become systemic mistakes that affect the whole economy, and even when they don't they are likely to distort prices affecting everyone who trades the contract in question. These, too, are costs of universal banking that should be taken into account.

C. 2007-2008: Commercial Bank Margin Lending Strikes Again

The logic underlying the view that asset price bubbles and financial instability can be fostered by commercial bank participation in margin loan markets was discussed in detail in Section III. That section explained that when commercial banks provide funding for margin loans, the safety of the loans means that the market will be borrower-driven. As a result of this structure, when borrowers follow procyclical decision rules or are adversely selected, their behavior will affect the market as a whole. The role played in the crisis of 2007-2008 by margin lending and procyclical decision rules was established by Tobias Adrian and Hyun Song Shin, who view the crisis as the consequence of an asset price bubble. The conclusion of their paper on securitization finds: "In retrospect, the boom in the securities sector . . . could be seen as the emergence of a thirty-year bubble that began in 1980, and which burst with the first outbreak of the subprime [sic] in the summer of 2007. We are still feeling the after effects of that

¹⁴⁷ *Id.* at 128-29. A Senate report describes this incident acerbically: "a critical risk model for a portfolio containing hundreds of billions of dollars of financial instruments, operated by the man who developed the model at the behest of the portfolio manager, included flawed and untested components, and depended upon manual uploads of key trading data daily for its calculations. This untested, unautomated, error prone VaR model was nevertheless put into place at a bank renowned for its risk management." STAFF OF PERMANENT SUBCOMM. ON INVESTIGATIONS OF THE S. COMM. ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS, 113TH CONG., REP. ON J.P. MORGAN CHASE WHALE TRADES 186 (Mar. 15, 2013).

¹⁴⁸ JPM REPORT, *supra* note 146, at 36.

bursting.”¹⁴⁹ In this subsection, I draw the parallels between the recent crisis and Senator Glass’s view of the boom and bust of the late 1920s and early 1930s.

Margin loans in modern economies are usually made using repurchase agreements (repos). A repo is the combination of the sale of an asset with a simultaneous agreement to purchase the asset back at a specific date and price. Adrian and Shin show that in modern economies repos are the mechanism through which dealer banks adjust the degree to which they are leveraged.¹⁵⁰

Just as in the 1920s these margin loans are designed to protect the lender from risk of loss. They are usually over-collateralized, they are re-margined daily, and the lender has the right to sell the collateral if the borrower fails to meet a margin call – even if the failure is due to the borrower’s bankruptcy. (Note that the 1990 swaps amendment that was so important to the ISDA and is discussed above, made it possible for the collateral posted against a liability due on a swaps contract to be treated the same way as repo collateral.) Repos are very safe assets for the lenders – but, as the Bear Stearns and Lehman Bros. failures demonstrate, they can be catastrophic for the borrower.

Because repos are so safe for lenders, in the years preceding the crisis it was easy to finance holdings of assets that are liquid and trade regularly, such as stocks, using repos. In fact, some relatively illiquid assets, such as mortgage-backed securities were also financed using repo.

Unfortunately we have less data on the sources of the funds financing the repo market prior to the recent crisis, than we do for the call money market in the 1920s. The repo market is generally divided into the bilateral market where dealers trade amongst themselves and offer margin loans to clients, and the tri-party market where two clearing banks intermediate non-bank lending on the repo market.¹⁵¹ No aggregate data exists – even today – on the bilateral repo market, and in 2008 there was only limited data on the tri-party repo market.¹⁵²

¹⁴⁹ Tobias Adrian & Hyun Song Shin, *The Shadow Banking System: Implications for Financial Regulation*, 13 *BANQUE DE FRANCE FIN. STABILITY REV.* 1, 9 (2009).

¹⁵⁰ Adrian & Shin, *supra* note 60, at 419.

¹⁵¹ Tobias Adrian, Brian Begalle, Adam Copeland, and Antoine Martin, *Repo and Securities Lending* 6 (Fed. Reserve Bank of N.Y. Staff Reps. No. 529, 2013).

¹⁵² Today these two markets are estimated to be of about equal size. Adam Copeland, Isaac Davis, Eric LeSueur, and Antoine Martin, *Lifting the Veil on the U.S. Bilateral Repo Market*, LIBERTY STREET ECONOMICS BLOG, (July 9, 2014), <http://libertystreeteconomics.newyorkfed.org/2014/07/lifting-the-veil-on-the-us-bilateral-repo-market.html#.VAD-cPldUxI>.

Observe that the Glass-Steagall Act, when it prohibited commercial banks from acting as the “medium or agent” of a non-bank in making margin loans, was designed to prevent the development of a margin lending market that was intermediated by commercial banks, such as the tri-party repo market. As noted above, presumably the fact that repos are structured as sales and repurchases rather than loans allowed them to fall outside the specific parameters of the prohibition.

Non-bank margin lenders were a destabilizing force in both the late 1920s and the recent crisis. In 1929, the funds lent by non-banks fell by more than 60% from the end of the third quarter to the fourth, and continued to fall for the next few years. In 2008, non-banks withdrew repo financing from Bear Stearns and Lehman Bros., the two banks that failed,¹⁵³ and with few exceptions withdrew financing of private sector assets.¹⁵⁴

By contrast, the behavior of bank margin lenders in the two crises was very different. In 1929, the banks played a stabilizing role in the margin loan market: the funds lent by banks against the security of stocks and bonds fell only slightly at the end of the year and then increased by almost 50% in 1930. In 2008, the evidence indicates that the behavior of dealer banks played an important role in the decline in funds available on the market.¹⁵⁵ One reason for this behavior may have been that initially on the bilateral repo market, the dealer banks were willing to lend against the full value of the assets used as collateral; and then, as the likelihood of a decline in asset prices loomed large, the dealer banks demanded that positions be overcollateralized which had the effect of reducing the credit available to borrowers, forcing sales of collateral, and causing the asset price decline that was feared.¹⁵⁶

Because margin lending is structured to favor the lender, the mystery in this crisis – as was the case in the late 1920s – is why the borrowers were willing to enter into loans with such stringent terms. We are left with the same basic explanation: adverse selection. The repo market prior to a crisis is most likely selecting out those who may be hiding insolvency and gambling for redemption, those who simply fail to understand the terms on which they are borrowing,¹⁵⁷ or those who suffer from excessive optimism and a

¹⁵³ Adam Copeland, Antoine Martin & Michael Walker, *The Tri-Party Repo Market before the 2010 Reforms* 37-38, 55-56 (Fed. Res. Bank of N.Y. Staff Rep. No. 477, 2010).

¹⁵⁴ Arvind Krishnamurthy, Stefan Nagel & Dmitry Orlov, *Sizing Up Repo* 25 (NBER Working Paper No. w17768, 2012).

¹⁵⁵ *Id.* at 31-32, 51.

¹⁵⁶ Gary Gorton & Andrew Metrick, *Securitized Banking and the Run on Repo*, 104 J. FIN. ECON. 425, 438-39 (2012).

¹⁵⁷ The collateral crisis experienced by AIG may reflect this, as AIG apparently did not evaluate the collateral terms of its super senior exposure when it measured the risk of the positions it entered. Robert O'Harrow Jr. & Brady

belief that asset prices will not fall far.¹⁵⁸ The latter category may be particularly large in modern markets, on the basis that, if asset prices start to fall, they will trigger a systemic event, and the Federal Reserve will either step in to keep asset prices from falling or take other action to protect financial institutions from systemic risk.¹⁵⁹

Adrian and Shin do not frame repos as assets that are structured to be safe for lenders. Instead they evaluate the aggregate consequences of lending on repo in an environment where the behavior of the broker-dealers that borrow on repo has the effect of targeting a specific leverage ratio (and document that the data supports this interpretation of broker-dealer behavior). They find that the combination of this procyclical behavior with collateralized lending has the effect of promoting asset price booms and busts.

Adrian and Shin and Senator Glass observed the same phenomenon in which margin loans played an important role in fostering asset price bubbles. There is a crucial difference in their analyses, however. Senator Glass believed that the ability of commercial banks to fund margin loans and asset price increases by expanding the money supply played an important role in the bubble, and that limiting the points of contact between commercial banks and asset markets would constrain the growth of asset prices by forcing investors in assets to compete for limited funds. By placing a firewall between asset price increases and increases in the money supply, the Glass-Steagall Act was designed to break the feedback loop that fed the asset price bubble.

Adrian and Shin, by contrast, do not make any connection between asset price bubbles and increases in the money supply. They claim instead that “[t]he distinguishing mark of a modern financial system” is that it is “market-based” and “[i]n a market-based financial system, banking and capital market

Dennis, *Downgrades and Downfall*, WASH. POST, Dec. 31, 2008, <http://www.washingtonpost.com/wp-dyn/content/article/2008/12/30/AR2008123003431.html>.

¹⁵⁸ See *supra* notes 139-141 and accompanying text.

¹⁵⁹ The stated policy of the Federal Reserve under Greenspan was to protect the market from systemic risk. Alan Greenspan, Federal Reserve Chairman, Remarks Before the Conference on Capital Regulation in the 21st Century: The Role of Capital in Optimal Bank Supervision (Feb. 26, 1998) (“The management of systemic risk is properly the job of the central banks. Individual banks should not be required to hold capital against the possibility of overall financial breakdown. Indeed, central banks, by their existence, appropriately offer a form of catastrophe insurance to banks against such events.”) See also Letter from Int’l Capital Market Ass’n European Repo Council in response to FSB Shadow Banking Workstream – Interim Report on Securities Lending and Repos, Annex, (May 22, 2012) (“The question is how to mitigate such systemic liquidity risk [from a fire sale of collateral assets]. We believe that systemic risks require systemic responses. In this case, the authorities can be expected to intervene as lenders of last resort to ensure the liquidity of the system as a whole. For their part, market users should be expected to remain creditworthy and to have liquidity buffers sufficient to sustain themselves until official intervention restores sufficient liquidity to obviate the need for fire sales.”)

developments are inseparable, and funding conditions are closely tied to the fluctuations of leverage of market-based financial intermediaries.”¹⁶⁰ They make it clear that when asset prices increase and margin borrowers do not want their leverage to fall in tandem with the increase, the demand for additional margin lending is always funded in a “market-based” financial system. They do not address questions regarding the source of these funds and whether the money supply expands to accommodate the increase in margin lending. Therefore, they do not entertain the possibility that the growth of the money supply could be constrained so as not to accommodate the demand for margin loans.

Note that the claim that the modern financial system is more “market-based” – and less “bank-based” – than in the past is a matter of some dispute. At least when the issue is short-term finance, such as margin lending, almost all of the so-called “market-based” instruments have relied heavily on commercial bank guarantees of payment.¹⁶¹ To the degree that short-term market based instruments, like tri-party repos, are in many ways the liabilities of commercial banks and therefore closely tied to the expansion of the money supply, the interaction between the “market-based” financial system and the money supply should be more clearly addressed by researchers.

Thus, an understanding of the reasoning that motivated the passage of the Glass-Steagall Act provides a framing that modern researchers should at least consider as they evaluate the stability of the modern financial system. Senator Glass, after all, viewed the phenomenon of asset prices increases that are accommodated by expansions in the money supply as a phenomenon that must be extinguished in order for financial stability to be possible.

Adrian and Shin’s proposals are much more restrained than those of Senator Glass. They argue that financial stability will require that regulators must generally monitor leverage in the financial system

¹⁶⁰ Adrian & Shin, *supra* note 149, at 1-2.

¹⁶¹ Carolyn Sissoko, *Shadow Banking: Why Modern Money Markets are Less Stable than 19th c. Money Markets but Shouldn’t Be Stabilized by a ‘Dealer of Last Resort’* 12-13 (USC Law Legal Studies Paper No. 14-21, Apr. 2014). Note that, since February 2014, a key repurchase agreement market has been reformed to make it much less reliant on commercial bank guarantees. *See id.* at 8. The Federal Reserve appears to be positioning itself to step into the reformed market, if intervention becomes necessary. *See* Tracy Alloway & Michael Mackenzie, *Fed Opens Its Doors Wider to Repo Trading*, FIN. TIMES, Mar. 20, 2014; *Fitch: Reverse Repo Program Gains Influence With U.S. Money Funds*, BUS. WIRE, June 19, 2014.

carefully,¹⁶² and that the Federal Reserve must pay some attention to procyclical leverage when setting monetary policy.¹⁶³

The parallels between the stock market crash of 1929 and the recent financial crisis are remarkable. Equally remarkable is the disparity between policy-makers' reaction to the role played in the crises by commercial banks and the margin loan market. In the 1930s the role played by commercial banks in the margin loan market was viewed as dangerous, and firewalls were established to constrain the behavior of commercial banks. Today, policymakers are more likely to view the procyclical relationship between repos and asset prices as intrinsic to the nature of markets, and they aspire to limit the ill effects of this relationship using supervisory tools like macro-prudential regulation.¹⁶⁴

VI. CONCLUSION

This article seeks to promote a better understanding of the role played by the traditional functional separation of money markets from capital markets in protecting financial stability in the U.S. and British economies. While the claim that a movement to universal banking would undermine the quality of our financial markets was only a theory in 1980s, we now have substantial evidence that universal banks lobby very effectively for “dark” markets that are characterized by their profitability for the banks that deal on them due to information asymmetries. Similarly, concerns that the size of universal banks would undermine markets were conjectural in the 1980s, but we now know that the errors of a bank like Citibank can distort markets and have devastating effects on financial stability. Finally, during the debates over the repeal of the Glass-Steagall Act the fact that one of its purposes was to protect markets from commercial banks was not widely recognized, and this paper shows that the crisis of 2007-08 was a replay of precisely the type of margin lending boom and crash that Senator Carter Glass sought to end with his Banking Act of 1933. In short, the functional separation of financial sector services in the U.S. and the U.K. should be understood, not as an accident of history, but as a foundation upon which capital markets that were both very liquid and yet reasonably stable could be built.

¹⁶² *Id.*

¹⁶³ Tobias Adrian & Hyun Song Shin, *Money, Liquidity, and Monetary Policy* 11 (Fed. Reserve Bank of N.Y. Staff Rep. No. 360, 2009).

¹⁶⁴ See Janet Yellen, President of the Fed. Reserve Bank of San Francisco, Presentation to the Institute of Regulation & Risk: Linkages between Monetary and Regulatory Policy: Lessons from the Crisis (Nov. 17, 2009).

This article provides support for a radical restructuring of our financial system along the lines of the 21st Century Glass-Steagall Act proposed by Senators Warren, McCain, Cantwell, and King. By carefully explaining the benefits to capital markets of protecting them from the monetary liquidity that is so easily created by commercial banks, this article presents some old – but to modern readers entirely new – reasons for placing firewalls between money markets and capital markets and between commercial banks and investment banks. Prohibitions on dealing by commercial banks in securities are designed to keep commercial banks from dominating securities markets, to avoid the instability that can be caused by the errors of large commercial bank-dealers, and to make it less like that an oligopoly of commercial bank-dealers will successfully promote non-transparent over-the-counter markets. Prohibitions on underwriting by commercial banks and on commercial bank intermediation of non-bank margin lending are designed to eliminate feedback loops between asset price increases and increases in the money supply, and thus to eliminate an important source of instability in financial markets.

Because of radical changes to the financial system that have been put in place over the past few decades, the reintroduction of firewalls between commercial and investment banking will require a major restructuring of the modern financial system. This should be viewed as a natural consequence of the radicalism of the earlier reforms. The 2008 crisis is clear evidence that these reforms were an egregious mistake and that it is incumbent upon policymakers to scale them back with legislation designed not to enhance the existing financial system, but to transform it.