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**The Call Loan Market in the U.S. Financial System
Prior to the Federal Reserve System**

Jon R. Moen and Ellis W. Tallman

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The Call Loan Market in the U.S. Financial System Prior to the Federal Reserve System

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Abstract: The call loan market in New York City played a central role in funding the expansion of economic growth and capital investment in the United States in the late 1800s and early 1900s. Changes in the identity of the intermediaries providing those funds help explain why the movement for the establishment of a central bank in the United States took hold only after the panic of 1907. The growing significance of nonclearinghouse creditors to the call money market diluted the relative financial influence of the New York City bankers and compromised the apparent “coinsurance” arrangement between brokers and New York Clearinghouse lenders that prevailed during the late nineteenth century.

JEL classification: N21, N41

Key words: financial crisis, unit banking, correspondent banking

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The Call Loan Market in the U.S. Financial System Prior to the Federal Reserve System

I INTRODUCTION

Our chapter on the call loan market in New York City plays a central role in illustrating the key reason, in our thesis, for why the movement for the establishment of a central bank in the United States took hold only after the panic of 1907. The inherent flaws of the existing United States financial system provided fertile ground for complaint and the call loan market was an easy target for a variety of critics and reformers. In the aftermath of the panic, critics voiced a common concern centered on the lack of liquidity in the call loan market during financial crisis. Such complaints were non-controversial; the call loan market – the market for loans “demandable on call” and collateralized by stock equity – was unable to maintain liquidity in both the securities markets and the payment system especially during the most severe crises. Then why did it take several colossal failures (1873, 1893 in particular) before the reform movement took hold after the Panic of 1907?

Before the turn of the 20th century, New York Clearinghouse banks were the predominant source of funds for call loans on the New York stock exchange. New York Clearinghouse banks were able to maintain liquidity on the call loan market in the prior panics, despite disruptions to intermediation, because they monopolized the funding of that market. The growth of trust companies in New York City (notably, not members of the New York Clearinghouse) along with the increasing sophistication of interior banks led to a rising proportion of call loan volume beyond the control of New York Clearinghouse banks. By 1907, the influence of these external sources of funds for the call market diluted notably the apparent monopoly of the New York Clearinghouse on the provision of these funds.

At that time, New York City national banks and other New York Clearinghouse members still held nearly 40 percent of their loans outstanding in the form of call loans. Hence, a substantial devaluation of call loan assets would seriously weaken their balance sheets and threaten their solvency. Any widespread liquidation of call loans by the trusts or the interior banks might trigger a rapid loss of stock market value. As the call market share of New York national banks and New York Clearinghouse members fell relative to the share funded by “outsider” institutions, the probability increased of observing a collapsing value/price scenario in the stock market.

Roberds and McAndrew (1995) emphasize a model of banking panics in which intermediaries akin to trust companies “free ride” on the intermediaries that are central to the payment system and that hold a larger proportion of reserves relative to loans or deposits. We argue further that the trust companies also “free rode” on the New York Clearinghouse banks in the call loan market. Namely, the New York Clearinghouse banks (the New York national banks, mainly) provided “coinsurance” to call loan market participants, both the brokers and the other lenders, in that the clearinghouse banks would guarantee liquidity provision to the call loan market. In the presence of financial panics, the New York Clearinghouse banks would take actions to alleviate the extreme liquidity demands arising from either the capital market or the payment system/money market. These actions were intended to forestall any large-scale liquidation of call loans (and potentially, of the stock collateral supporting the loans).

In National Banking Era financial panics, the central scarcity was the lack of high-powered money – in less technical terms, there was a scramble for reserves. In October of 1907 when the New York City trust companies were faced with a widespread withdrawal of deposits, their meager reserve holdings (and recall that their deposits at

national banks were considered “reserves”) would not satisfy withdrawal demands for long. The next logical source of cash for trusts facing panic-induced withdrawals was the liquidation of their call loans.

New York Clearinghouse banks wanted to maintain the liquidity of the call market to support the values of the related stock market collateral if there was an extreme demand for cash. Insufficient call loan market liquidity could force undesired liquidation of call loans, perhaps forcing “fire sale” pricing of the collateral supporting the loan. A cascade sparked by liquidation of collateral could depress observed market values of the stock market collateral, adversely affecting the perceived balance sheet health of banks with substantial holdings of call loans. As a result, a perceived shortage of liquidity in the call loan market gave the New York Clearinghouse banks ample motivation to provide liquidity to (in essence, buy call loans from) the New York City trust companies, despite a history of rivalry and dissention.¹

We know from historical documentation that there was a perception of insufficient liquidity on the call loan market in October of 1907.² The behavior of the call money interest rate supports that view, reaching a high of 125% on October 24, even though very few trades were placed at that price. Under those circumstances, the New York Clearinghouse banks likely were willing to deal directly with their rivals (although on terms determined by the clearinghouse) in order to prevent panic induced stock collateral liquidations in such an illiquid stock market.

¹ It was well-known prior to 1907 that the trust companies were invading the turf of national banks in New York City on both the deposit taking side, and in the supply of loans to the call loan market. The banks were critical of the lax reserve requirements placed on trusts, and New York trusts benefited from strong political influence at the state level that exceeded the influence of New York national banks.

² See Testimony of Ransom H. Thomas, President of the New York Stock Exchange during the Panic of 1907, *Money Trust Investigation*, page 355. See also testimony of George Cortelyou, the Secretary of the Treasury, page 439.

The competitive supply of credit to the call money market accelerated the resulting collapse of the “co-insurance” arrangement among call loan participants (borrowers and lenders). The dilution of the control of New York Clearinghouse banks over the call loan market exposed the clearinghouse and its members (key institutions in the payment system) to the effects of runs on deposits in intermediaries outside of the clearinghouse. The events of 1907 were clear signals that this system was untenable and convinced New York banking interests that the status quo was no longer acceptable. The New York Clearinghouse’s self-determined responsibility to insure the liquidity of the call loan market was beyond their financial means.

II INSTITUTIONAL FEATURES OF THE NATIONAL BANKING SYSTEM

Our analysis focuses mainly on the New York money market, and specifically on the New York Clearinghouse banks in the call loan market in the years following the panic of 1893. The digression on the National Banking Era provides useful background that sets up market responses to institutional regulatory incentives. The growth of trust companies in size and financial prominence in New York City is a prime example of this response.

The structure of the National Banking system directed, for the most part, where the reservoir of reserve funds for the banking system would be held because country banks were permitted to hold reserves in the form of deposits at reserve city (or central reserve city) banks. The funds were already available for the call money market in New York City prior to the national banking system arising from the movement of funds through the process of inter-regional and international trade. New York City banks nurtured the call market from its inception, and dominated the supply of loanable funds put out “on call.” The regulations on bank reserves for national banks reaffirmed the location of the largest concentration of reserves in

New York City. Intermediaries also had the desire, due in part to the payment of interest on bank deposits, to have correspondent relationships with New York City banks for inter-regional bank clearings in support of the inter-regional and international trade. The legislated reserve structure in the National Banking Acts that allowed the interior banks to consider deposits in New York City banks was a key consideration for attracting interior banks into adopting a federal charter.

The “pyramiding” of reserves in the national banking regulatory structure was often criticized – central reserve city banks were forced to hold 25 percent reserves in “lawful money” (cash-in-vault, coin, gold), but they were also holding deposits that served as reserves for interior national banks in smaller cities and towns. These other national banks were required to hold 15 percent reserves on deposits, but 60 percent of those reserves could be held as deposits in “approved” reserve or central reserve city banks. Under these restrictions and the payment of interest on such deposits in New York City, a large proportion of the deposits held as reserves for interior banks drifted toward New York City national banks. Typically, New York City national banks paid interest on banker deposits and the active market for call loans on the New York Stock Exchange enabled those national banks to make profits from the typically positive spread between the call money interest rate and interest paid on banker deposits.³

The call loan market was mainly supplying liquid funds for margin borrowing on the stock market. Call loans were potentially demandable (or callable) on notice within the day – call loans were typically not called after 12:15PM (but it was by custom rather than as a rule). The implicit term of the loan was overnight, but most loans were rolled over (95 percent of loans were renewed). The call rate was a quoted interest rate applied to these overnight loans. The call loan rate in New York City was a competitive market rate on new loans, and the renewal rate

³ Myers (1931, p 120) noted that the payment of interest on bank deposits was controversial, although New York City banks likely offered interest on bank deposits to maintain its competitive position with trusts and private bankers in New York City. Griffiss (1925 p. 87) noted that a large portion of

was the average of loan rates observed on that day. The borrower may sell the collateral and seek to substitute another stock for the liquidated collateral in order to maintain the loan. All such substitutions were subject to the approval of the lender, and all lending must be transacted through a broker.

Call loans typically required a contribution of 20 percent from the borrower, and the lender held the collateral, usually the stock certificates purchased with the loan, akin to the current method of purchasing stock on margin. Call loans in New York City also had particular legal covenants that essentially gave all power to the lender in the borrower breached any of the contract elements.⁴ For example, the lender could, upon breach of contract, sell the collateral and the borrower was still liable for the remaining balance if the sale price was insufficient to cover the loan balance. Still, it is likely that a delay of payment due to litigation and its perceived costs made this procedure an uncommon outcome, especially during a panic.

Similar to the current practice of margin loans, the transaction involving call loans could originate with money brokers (located anywhere in the country), banks, or on the New York Stock Exchange, and these alternative sources would administer to loans differently. Ultimately, the sources of loan funds were banks and other intermediaries, and the money broker played the role of loan distributor for banks (loan funds raised in New York City, and collateral held in New York by the lender/broker).⁵ In order to lend on the stock exchange, suppliers of funds had to lend through a broker who was a member of the exchange.

In New York City, the national banks developed relationships with brokerage houses and

bankers balances held at New York City banks were typically loaned on the call market.

⁴ The details of the call loan are taken from the example posted in Herrick (1915), page 228. The example is a call loan agreement by the Columbia Trust in 1905.

⁵ Brokers could also lend their own funds on call. The brokerage houses are considered intermediaries. We have reliable data on New York City national bank loan activities in the call market, but we do not have such data for private banks or frequent data on state or trust companies. We rely on anecdotal, Congressional reports, or special investigations to assess the participation level of these intermediaries.

other brokers, and lent on call through these brokers on the exchange. Institutions that lent on the exchange were either NYC banks or trusts, or out of town institutions that loan funds through NYC correspondents. In this latter case, the NYC intermediaries (be they national or state bank, or trust company) acted as agents in arranging call money loans for the out of town banks, and often the out-of-town banks were required to hold balances with their agent intermediary. In terms of the durability of the lender-broker relationship, the relationship important for the reliability of the funds for lending was between the NYC institutions – either as agents for interior banks or as the original source providers of funds -- and the brokers that lend the call loans on the stock market.

III THE RISE OF THE CALL LOAN MARKET

The call loan market in New York City was an important component of the US financial system from the initial development of the market in the early 1800s (Myers 1931 p132). The market was a loan market to provide liquidity to the stock exchange for margin purchases and for sufficient funds to ensure daily settlement of transactions on the exchange. The call money market arose out of the concentration of excess liquid resources among New York City banks. As a central financial and trade center, New York City attracted resources from the interior and other parts of the country like for example the shipment of agricultural exports to Europe, and for facilitating European investment in the expansion of the rail transportation system. The New York City banks held deposits from interior banks that might withdraw part of those deposits at short notice. As a precaution, the New York City banks held a portion of banker deposits in the form of “liquid” call loans. The interest on these loans and the perceived liquidity of call loans – short-term loans, callable upon demand -- and the perceived safety -- collateralized by “liquid” stock collateral – made it an attractive investment for New York City banks.

The essential characteristic of the New York City money market as the financial center of the country, was reinforced or rather was institutionalized in the various National Banking Acts. Key elements of the national banking structure provided a strong incentive for cash (or resources) from the interior of the country to migrate to New York City by establishing New York City national banks as central reserve city banks, a designation that allowed interior bank deposits held at New York City national banks to be considered legal “reserves” for interior banks.⁶ The central reserve city designation combined with the typical practice of the New York City banks – paying interest on banker deposit balances – provided incentives for interior banks to maintain balances in New York City national banks along with the typical correspondent balances for the facilitation of inter-regional trade.

The value of call loans outstanding held by New York City banks at the time of the banking crisis of 1907 was between 30 to 40 percent of their loan portfolios, and about half of their loans were backed by collateral. Banks viewed the call loans as relatively safe for the purpose of holding interior deposits because the collateral was typically liquid and borrowers could likely raise funds from other banks or brokers to pay off loans if they were called for repayment. Overall, the New York City national banks viewed these loans as more liquid and typically of higher quality than credit based loans and those backed by less liquid collateral, like, for example, real estate.⁷ For idiosyncratic liquidity fluctuations (like one bank removing funds from the call loan market), the call loan market was liquid and appeared to redistribute reserves effectively in normal economic periods.⁸ Despite the size and importance of the call loan

6 The National Currency Act of 1863 and the National Banking Act of 1864 (also, Acts in 1865, 1874, and 1887) created the structure of the National Banking System (see James 1978, White 1984). We refer to these “deposits” as “secondary reserves” and consider as primary reserves the cash held in an intermediary’s vault because the cash reserve was most liquid. Note that deposits at central reserve city banks often qualified as reserves for state chartered banks as well.

7 Note that national banks were restricted from investing directly in real estate loans.

8 There are numerous authors who discuss the call loan market as a key source of instability during national banking era panics (see Woodlock 1908, Laughlin 1911, Warburg 1930 and Goodhart 1967).

market, it also became a lightning rod for political and economic controversy especially in the years following the banking crisis in 1907.

The existing financial structure did not provide a mechanism to increase high-powered money quickly in any reliable manner, and was notably strapped in times of market duress. The system, at that time, was unable to adjust to systemic increases in the demand for high-powered money, which – in this setting, was mainly the demand for cash. For idiosyncratic liquidity demands, the New York City banks important for the payment system parked “liquid” resources in the call loan market. Call market loans were convenient for the rearrangement of reserves across intermediaries, but it was less equipped for the systemic demands for liquidity. Due to both institutional and economic reasons, these funds on the call market were essentially the “liquid” reserves of the United States financial system.

The basic point, however, regarding the call loan market was simply that the collateral (stock equity) used to back a call loan was a highly volatile asset. Although that market was most often quite liquid, financial crises made the market highly illiquid, and the collapse of market prices could get magnified if liquidity was unavailable. In addition, the call loan was not one that banks would rediscount, because the collateral value was observable. Instead, the loan could be sold – but during a panic, the “sale” value of collateral might be unclear. That is why the key reformers of the banking system – J. Laurence Laughlin and Paul Warburg – agreed that the development of a rediscount market comprised of short-term, self-liquidating loans would be a promising alternative to the call money market as the basis for liquid bank assets. Even if these assets have bad outcomes – e.g., claims cannot be paid off – the loans are claims to inherently less volatile assets and the correlation across these ‘real’ assets is likely less than the correlation

Myers (1931) notes that although the call loan was viewed as speculative by the average observer, banks typically viewed call loans as safe, liquid short-term investment vehicles. In addition, Myers also points out that New York City banks tended to rearrange call loans generally rather than to liquidate them.

across stocks (see next chapter for elaboration of this idea). Finally, and perhaps most importantly, the reformers aimed at repairing the underlying flaw in the financial system – no reliable and rapid method to increase base money. One solution – a central banking institution, likely a public institution – would be willing to hold self-liquidating real assets through the discount function, essentially exchanging private claims (the asset to be rediscounted) for public claims (currency). The potential losses to the taxpayer were more limited than in a call loan set up.

IV THE PANIC OF 1907 AND NEW YORK CITY CLEARINGHOUSE BANKS

Barnett (1910, p 235, noted in White 1984 p 37 and in Livingston (1986) p 139) highlighted the tremendous growth of trust companies in New York City from the years 1896 to 1907. By 1907, New York City trust companies were roughly comparable in aggregate size to the national banks in New York City. During this time, the trust companies were much less competitive with banks with respect to retail payments, displaying only 7 percent of the check clearing volume of national banks. The lower volume of clearings was a justification for why trusts held fewer reserves, and trusts likely held a lower proportion of call loans within their loan portfolio than national banks because New York City trusts held fewer deposits from interior banks. However, the trust companies were competing with banks with respect to attracting private individual deposits and the deposit of resources in excess of required reserves from interior banks, that is, a lower volume of banker balances that could be liquidated at short notice. These excess resources placed with trusts would not count as required reserves for national banks, but they would be useful balances for inter-regional transactions. New York City trusts often offered interest rates on banker deposits higher than those of national banks, mainly because they held fewer non-interest producing cash balances – that is, they paid a lower reserve

tax because a smaller proportion of their assets were mandated to have a zero nominal return. The balances in excess of required reserves held at trust companies were purportedly put to use in the call loan market, although it is difficult to find corroboration in terms of precise, quantifiable figures.

As the resources of trusts grew, so did their participation in the call loan market, and that is consistent with the anecdotes referred to by Sprague (1903, page 47).⁹ The trust participation in the call loan market took form as both the supplier of funds directly and as the agent of interior bank funds. Notably, as the proportion of call loans arranged through trust companies increased, the influence of the New York City Clearinghouse banks in the call market diminished. And the decline in the relative influence of New York City national and clearinghouse banks was an important reason for the change in the perspective of New York banking interests toward the creation of a central bank in the United States. But the role of New York City trust assets in the call loan market need not be the only aspect of their role in destabilizing the New York City financial system. The trust companies were also acting as the agents for interior banks that chose to invest their excess reserves directly on the call loan market, thereby competing away gains formerly earned by New York City clearinghouse banks.

On average, the New York City national banks held about 1/3 of their loans as demandable loans (example: August 22, 1907 New York City national banks held \$251 million in call loans out of a total of \$711 million – these numbers are in Sprague 1910, Watkins 1929 and Laughlin 1912). The volume of call loans was typically in proportion to the amount of bankers' balances that were held in these New York City institutions (Watkins 1929, Myers 1931). Call loans were roughly 60 percent of bankers' balances (net due to other banks) held at

⁹ “By far, the larger part of the loans of trust companies are made against collateral securities. In the call loan market, they compete constantly with the banks, and are said to take a larger proportion of the total of those loans than of time.” Sprague (1903, page 47).

New York City national banks. Other sources of funds for call loans, namely trust companies and their correspondents, had already loosened the dominance of NYC national banks over the call loan market.¹⁰

Call loans aggregated across national bank intermediaries in August 1907 showed \$832 million out of total loans of \$4,678 million, just over 15 percent of all national bank loans as “call loans.” (see Table 1) ¹¹ It is unclear if all such demand loans backed by stock market collateral were loans on the stock exchange “on call.” However, these numbers indicate that the amount of loans on call at the New York Stock Exchange was potentially much larger than the funds directly contributed by the New York City national banks. In addition, these ‘total’ numbers reflect call loan exposure of national banks and so they do not capture funds placed in the call market directly by New York City trust companies, the funds from interior state chartered banks, or from private banks. Also, it is possible that the state banks and some interior national banks used a New York City trust company as its agent for issuing call loans. The bottom line is that the call loan market became more competitive and the influence of the New York Clearinghouse member banks on the call loan market was diminished from the turn of the 20th century and leading up to 1907. As their power in the call market waned, the clearinghouse member banks could not provide a sufficient stabilizing force to preserve unequivocal liquidity on the call market but this observation was not immediately apparent to market participants.

Financial stress arose during financial panics (for the National Banking Era, 1873, 1884, 1890, 1893, and most dramatically 1907). During those crises, when system-wide reserves were tight and the clearinghouse banks were unable to satisfy reserve demand, the New York stock market faced an apparent lack of sufficient credit for call market loans, and the call money

10 Myers (p 269) and Goodhart (page 101) note that Chicago banks as early as 1880 could loan on call in New York City directly.

11 Data on loans from Laughlin (1912), pages 113-114.

interest rate would increase sharply. Figure 1 displays the call money interest rate and the commercial paper rate (each the monthly average of the weekly rates) over the time period 1890 to 1910. Generally the call rate was below the rate of interest paid on commercial paper (and on time), but there were notable sharp upward spikes in the call money interest rate associated with these periods of “financial stringency.” The call money interest rate displayed time-series properties that were perceived as volatile and seasonal, and these characteristics were even more noticeable in the years just prior to 1907.

Capital demands from the burgeoning industrial and corporate entities likely exceeded the growth of national bank assets. Financial intermediaries that innovated around the institutional structure, like trust companies, were growing more rapidly and provided more resources to finance capital growth in the equity market. Figure 2 displays the total capitalization of the stock equity market in New York City (Jovanovich and Rousseau 2001) versus the aggregate volume of national bank loans. The notable aspect of the chart is the apparent divergence of the two series around 1897, just about the time that the trust company assets started to grow rapidly. The observation suggests that, given the stable proportion of national bank loans as call loans, a growing proportion of call loans on the equity market may have been from the intermediaries outside the clearinghouse system.

The relatively higher volatility of the call loan interest rate in the years leading up to the Panic of 1907 was attributed to larger fluctuations in the volume of funds available for issue on call. Woodlock (1908) was especially concerned that the direct lending by interior banks on the call market was potentially destabilizing, because it bypassed the New York City national banks and thereby hindered their interest in preserving a liquid market. The argument reflects an implicit insurance arrangement between the major, long-term market participants.

The larger New York City banks, and their relatively greater exposure to the call market,

made them the “monitors” for systemic withdrawals from the call market. If interior banks liquidated their call loans to retrieve reserves to meet depositor withdrawals during a panic, the resulting contraction in call loan liquidity would either force New York banks to: a) take over the loans, or b) to risk the possibility that the borrower would have to sell the collateral on the market during a panic to pay the loan. Undesired rapid liquidation of call loans during a panic threatened a cascade (downward spiral) in stock prices, an unpalatable prospect to New York City banks, which held a notable proportion of call loans on their books. As noted above, in 1907, the New York City national banks increased their loans to avert the undesired liquidation of collateral, which, if the liquidation took place, could have risked exacerbating the crisis. Clearinghouse bank extension of additional call loans was likely motivated by their perceptions of market illiquidity, and their full recognition of their relative greater exposure to the call market.

Given these factors (observations), the functioning of the call loan market appeared more disturbing to New York City bankers after the Panic of 1907 (see Woodlock 1908 and Laughlin 1912) relative to their experiences during earlier financial panics. As noted above, trust companies (and to a lesser extent state banks) also participated in the call loan market, and this participation increased rapidly in the several years prior to the Bank Panic of 1907. Importantly, the trust companies were not members of the New York Clearinghouse.

Contemporary claims suggest that the call market became increasingly volatile because interior banks and New York City trust companies were placing their funds on call directly. Interior banks using trust companies as correspondents and the trust companies placing their own call loans obviated the NYC national banks, the clearinghouse, and exerted distinct influence on call market interest rates and loan volumes. As a result, the trust companies broke down the dominance of New York Clearinghouse in the call loan market, free riding on the co-insurance

arrangements among New York Clearinghouse banks, but more importantly, failing to take into account the systemic costs of contracting the aggregate amount of call loans, and the external effects on the financial system.

Griffiss (1925), Watkins (1929), and Myers (1931) comment that the New York City clearinghouse banks were the largest local source of call loan funds. Also, Myers (1931, p 269) notes that “the New York banks comprised the only group which felt any responsibility for the market, and therefore the only group which felt obliged to assume the loan burden as other lenders withdrew.” The statement is telling, not only for its description of the 1929 call loan experience about which it was aimed, but also for the 1907 experience in which New York City national banks increased their call loans.¹² The statement also emphasizes the role that the New York clearinghouse member banks played in this institutional framework, that is, the long-term market participants whose intentions are to preserve the enduring viability of the call loan market – for all participants -- brokers and borrowers as well as lenders (clearinghouse banks). A quote from Woodlock (1908, page 36) suggests that New York City bankers recognized how dispersed credit issuance in the call loan market especially by sources outside the clearinghouse influence was increasing risk within the call market participants. “New York bankers felt that the existence of a mass of credit of these dimensions not subject to control had within it the potency of disaster.” On the following page, Woodlock cites estimates that the participation of interior banks on the call loan market was around \$400 million in December of 1906, and emphasizes that the New York banks had essentially no control over these funds.

It is noteworthy to point out that there were celebrated transactions -- perhaps “notorious” -- that were clearly affected by the lack of call market liquidity. The collateralized loan market suffered as well. The transaction between J.P. Morgan and the brokerage firm of Moore and

Schley on November 4, 1907 was a controversial settlement of a collateralized loan.¹³ Moore and Schley had \$25 million in loans that were coming due, and the collateral on that loan was Tennessee Coal and Iron. In the midst of financial panic, there was a clear aversion to liquidating the collateral, which could potentially weaken prices on the stock market further. But there was apparently insufficient liquidity (that is, reserve resources) available to commit to funding the loans using that collateral (stock equity). The final solution was the exchange of collateral – U.S. Steel took ownership of Tennessee Coal and Iron and in exchange gave Moore and Schley higher rated US Steel Bonds. Apparently, the substitution of collateral – stock equity that was perceived as illiquid replaced by highly rated corporate bonds that were perceived as liquid -- was sufficient to maintain the loan. But the 1913 Pujo Committee Hearings on a “Money Trust” argued that Morgan essentially extorted the ownership of Tennessee Coal and Iron through this transaction. It is notable, though, that during crisis periods, the collateral quality of a loan was of primary importance.

V COINSURANCE BETWEEN LENDERS AND BROKERS

The New York Clearinghouse banks dominated the call money loan market during the early years of the National Banking Era (1863-1914). As the dominant players in that market, the large, New York City banks also had a substantial proportion of their assets in call loans. Hence, these institutions had a great incentive to maintain the liquidity and viability of the call loan market. In essence, the New York City national banks engaged in a co-insurance arrangement, supported through the clearinghouse. The New York Clearinghouse had the incentive to monitor the solvency and liquidity of its members, and to ensure that the liquidity

12 Laughlin (1912, page 65) applauded the New York City national banks for increasing their call loans during the Panic of 1907, and emphasized the palliative effects of credit extension during panics.

13 Tallman and Moen (1990) note that there was suspicion that the brokerage also used the collateral

demands of a key market (the call loan market) were satisfied. As intermediaries outside the clearinghouse gained direct access to the call loan market, the implicit insurance arrangement began breaking down. The trust companies and interior banks that issued loans on call were essentially free-riding on the insurance provided by the clearinghouse members. These other participants in the call loan market were not concerned with the long-term viability of the market – that is, they acted as if their actions were unimportant – although their actions likely caused the sharpest movements in call loan volume during the Panic of 1907.

The withdrawal of funds from the call market by these other institutions is analogous to the movement of “hot money” during the Asian Crisis in 1997. The portfolio managers shifted the placement of funds toward the areas of highest return rather than being concerned with the long-run viability of the Asian financial markets. Separately, the liquidation of assets in the Asian markets could also have been motivated by exogenous liquidity demands arising from outside the respective countries. The combination of these events put enormous pressure on the developing Asian financial markets.

Table 1: Call Loans and Total Loans for National Banks

	<i>NYC</i>			<i>All</i>	
	<i>CALL</i>	<i>TOTAL</i>	Net Banker Balances in NYC	<i>CALL</i>	<i>TOTAL</i>
1907 August	\$252M	\$712 M	\$410M *	\$832M	\$4678M

Sources: Sprague, O.M.W. page 301 for New York City national banks, also in Laughlin (1912) page 114. Numbers for all national banks, Laughlin (1912) page 113. Banker

balances, Young (1928) page 12 and in Watkins (1929) page 216. *Watkins (1929) page 70, summation of balances totals \$455 M for the same time period.

We interpret the observed relationship between the New York City bankers and the stock brokers as an example of an *implicit insurance* contract, a twofold contract between the brokers and the bankers, as well as between/among the bankers themselves as the major providers of funds to the call market. The insurance argument describes fairly well the interactions between the bankers during 19th century panics through the New York Clearinghouse, as well as the perceived lack of action – namely, few liquidations of call loans – between bankers and brokers during panics.

In contrast to the New York City national banks, interior country banks typically had not considered the “external effects” of liquidating call loans.

Country bankers realize that the small individual loans which they make in the call money market are practically negligible in comparison with the huge volume of funds which is daily lent or withdrawn from the market. Hence they feel no trepidation as to what effect their withdrawals will have on such a market, whereas in a more limited and narrow market, similar withdrawals, would have a serious effect on the general tone of the market from which they were withdrawn.

Griffiss (1925, p. 92)

Trusts held a large proportion of their assets as “collateralized” loans, a portion of them were call loans although precise measures of the proportion are not available. In particular, New York City trust companies were known to both participate directly in the call loan market and act as agent for interior banks and trusts that operated directly on the call loan market. For loans backed by security collateral (either on time or on demand), the provision of collateral offered the lender some insulation from the credit risk inherent in the particular loan, if the collateral risk was distinct from the risk in the business or project that the loan financed. Typically the collateral for a loan was liquid stock market securities or bonds that could be sold quickly in

normal market conditions. However, stock (and bond) collateral also had inherent risk associated with its asset value fluctuations. Aside from such specific risk, there were market liquidity risks that applied to stock equity. The financial crises were infrequent, but there was potential for a market breakdown that was recognized by the key New York banking institutions. From a financial system standpoint, a secondary reserve buffer cannot provide liquidity in times of stress without access to a method to increase quickly the quantity of base money. Further, the call loan market provided a venue for potential disaster -- large-scale liquidation of call loans would risk a downward spiral of asset valuation.

VI CONTEMPORARY CRITICISMS OF THE CALL MONEY MARKET

As early as Kemmerer (1922), the creation of the Federal Reserve System was seen as a crucial mechanism to separate the capital market from the market for reserves and the payment system (page 37). Livingston (1986) notes that the demand for capital to finance American economic growth outstripped the financial capacity of the New York City banks. These banks, though, could participate in the expansion of capital markets by funding call loans – a backdoor provision of equity finance. The call loan market, however, was then forced to play two incompatible roles in the existing financial system. Antipathy toward the call loan market and its de facto use as a secondary reserve was a central common element among the key critics of the financial system. The near- uniform disapproval of the central role of the call loan market helped bring together interest groups with notably divergent views about the “optimal” financial system and helped forge a consensus toward financial system reform.

In the early 1900s before the establishment of The Federal Reserve System, contemporary economists recognized that the use of the call loan market as secondary reserve for the financial system was unsuitable in times of financial crisis. For example, Laughlin (1912,

page 79), “A general attempt to realize collateral on call loans means that collateral cannot be sold.” Implicitly, the large flood of securities for sale in a panic market would imply capital losses too large to realize for some institutions. As a critic of the call loan market in general, Laughlin noted that the national banking act, with various restrictions on national bank asset holdings, had not restricted the proportion of call loans that a national bank could maintain.

With regard to the Panic of 1907, Paul Warburg writes:

Banks and individuals with hundreds of millions in call loans at their disposal could not save those that were drowning. As already mentioned, without a central reserve organization and without an elastic note issue, one bank could only strengthen itself by weakening another, and any attempt to call in funds from a debtor would only throw him into desperate confusion and set in motion a chain of further embarrassments and insolvencies. (Warburg 1930, Volume I, page 21).

A less well-known contributor to the central bank movement, Victor Morawetz, also noted the role of the call loan market in spreading the credit problems during the Panic of 1907. “Each bank that has loaned money on call assumes that, in case of need, it can strengthen its reserve by calling such loans; but it fails to consider that, generally, when a loan is called the borrower is obliged to borrow the same sum from some other bank, although a high rate of interest may be enacted, and, therefore, that call loans affect the security of the entire bank situation practically to the same extent as time loans.” (Moravetz 1909 pp 48-49.)

Among contemporary critics, the call loan market was perceived as the source of liquidity for “speculative” financial interests, and several key architects of the central banking legislation were unequivocal about wanting to direct liquid funds away from the call market.¹⁴ Instead, the desire of these reformers, namely Laughlin and Warburg, was to develop a nationwide

¹⁴ Myers (1931, p 133) also emphasizes the contribution of the call loan market to ensure liquidity and institutionalize daily cash settlement on the stock exchange. It is notable that Warburg suggested that the daily cash settlement of the stock market was unnecessary (see “Defects and Needs of Our Banking System”, pp. 9-28 and “The Discount System in Europe” pp. 202-203 in Volume II, Warburg 1930). Woodlock (1908) saw benefits in daily cash settlement.

rediscount market for banker's acceptances, comparable to the markets in Europe (see Laughlin 1911 and Warburg 1909).¹⁵ It was notable that the commercial paper market in the United States at that time was relatively illiquid and small, and would have required more legal and institutional development to grow sufficiently to support a rediscount function. Laughlin, for example, suggested that banks would prefer to lend funds in other ways than in the call loan market if there existed a viable rediscount market for alternative assets (Laughlin 1911, page 117).

Although recent discussions about the intellectual forebears of the Federal Reserve System emphasize the different perspectives of Warburg and J.L. Laughlin regarding the "best" central bank, their opposition to the call market as a reservoir of secondary reserve assets was the central and compelling issue upon which they agreed.¹⁶ Laughlin lauded the New York City banks for increasing their call loans during the 1907 banking crisis, but he still wanted to reduce the amount of funds on call at the stock market and the reliance of the financial system on these funds as an emergency reserve source. Similarly, Warburg (1909 p 417) criticizes the inability of the financial system to expand cash reserves using call market, when a panic forces a bank to consider liquidation of "call loans on stock exchanges which during a panic they cannot turn into cash." Later, during his tenure as Governor of the Federal Reserve Board, Warburg posed a provocative question regarding reserve requirements in which deposits at central reserve city banks qualified as reserves. The quote illustrates a key flaw in the reserve structure of the National Banking Era. "If a call loan on the stock exchange made by a trust company is not a reserve but a loan, is it sound banking to call a reserve deposit made by a trust company in a

15 A key motivation for Laughlin's support for a rediscount market for bankers' acceptances was to prevent the National Reserve Association from holding stock market securities as collateral when issuing loans to members. Warburg advocated the development of a rediscount market for bank acceptances in the United States akin to the rediscount market in Europe.

16 See Mehrling 2002.

national bank a reserve, when 82 percent of it (*the deposit*) is loaned on call on the stock exchange?" The 82 percent figure reflects the approximate percentage of call loans relative to banker balances. At that time, banker balances (deposits) were seen as the primary source of the funds put out on call.

West (1974 p 30) describes how the call loan market was unable to serve as a useful reservoir of reserves in times of crisis. Essentially, the call loan market was liquid as long as call loans were simply shifted among creditors because there was normally some level of call loans outstanding. Whenever a large number creditors (banks and other intermediaries) tried to call in loans at the same time and in turn reduced the number of loans outstanding, the actions would cause a large disturbance to the stock market, making the call loans virtually uncollectable. West concludes "For this reason, call loans were the least liquid type of loan in times of stress." (West 1974, page 30).

Paul Warburg thought the daily cash settlement requirement in the New York Stock exchange was the institutional reason why the call money market became so important. The Wall Street Journal article argued that the call loan market should be removed from the stock exchange – although no substitute loan market was suggested, the sentiment against the call market is consistent with Warburg's views.¹⁷ Woodlock (1908) also notes that the daily cash settlement of the stock market gives rise to the demand for call loans, but he also refers to daily cash settlement as an important institutional restraint to limit speculative tendencies of the securities market.

With regard to financial crises, Lockhart (1921, page 235) notes that interbank borrowing increased substantially as a crisis struck. It is perhaps that the spike in interbank borrowing reflects the issuance of Clearinghouse loan certificates. Regardless, the rise in interbank

borrowing likely prevented a larger contraction in aggregate loans – note also that there appeared to be forbearance among intermediaries during crises.

Warburg (1930, page 637) wanted to reduce the flow to the call loan market of short-term liquid resources, but he did not want to cripple the securities markets by making their access to liquidity difficult. Instead, his goal was to promote an alternative market that would rival the call loan market as an outlet for liquidity. With regard to the establishment of a central bank, Warburg believed that American commercial paper would only become considered a “quick” asset if a safe proportion of those assets could be rediscounted. This goal could be achieved most directly if there was a central bank ready to buy those assets. At the time of the 1907 Panic, there was no central organization that discounted loans, and the call loan market failed to provide liquidity at times of financial stress. Hence, the establishment of discount markets in the United States for bank assets became a goal for Warburg, namely in his promotion of the banker’s acceptance market.¹⁸

Following his brief tenure on the Board of Governors of the Federal Reserve System, Paul Warburg in particular was active in the promotion of the banker’s acceptance market in the United States, and viewed the development and growth of the secondary market for banker’s acceptances as a key function of the new central bank. The Federal Reserve banks were able to purchase “eligible” acceptances from dealers and to rediscount acceptances directly offered by accepting banks.

VII SUMMARY

The paper offers the failure of the call loan market as one component to support the

17 Literary Digest – November 9, 1907 p 674-676 (Taken from the Wall Street Journal – recall that Thomas Woodlock was the editor of WSJ).

18 See Jacobs (1910) and Ferderer (2001).

proposition that the Panic of 1907 was critical to the establishment of a US central bank. At that time, the New York Clearinghouse was effectively the decisive participant in the United States payment system as well as key intermediaries for capital allocation. One instrumental element of the subsequent central banking proposals centered on a common opposition to the call loan market as a secondary source of liquidity for the US financial system in order to limit the connection between the payment system and capital markets. In prior panics, the New York Clearinghouse banks had sufficient power maintain liquidity on the call market while suspending convertibility of deposits into currency in the payment system. The diminishing relative size, and hence, influence of the clearinghouse weakened its ability to affect/alter the risks faced by the financial system both in the call market and in secondary effects, and in particular, to the payment system.

Our story distinguishing between classes of intermediary elaborates the central argument emphasized by Eugene White (1984), in which rapid growth of state-chartered intermediaries (including the trust companies) relative to the national banks weakened the ability of the national banks to dominate the payments system. This central element in our reasoning distinguishes our views from those of Broz (1999) and of McCulley (1992). Our refinement focuses mainly on the New York Clearinghouse and its evolving role in the domestic payment system as well as on distinguishing the growth in New York trust companies relative to other state-chartered institutions. Membership (or not) in the New York clearinghouse implied an “insider” and “outsider” relationship, both with regard to access to the clearinghouse and with regard to the reliability of the lender-broker relationships in the call loan market. The New York Clearinghouse banks included national, state, and private banks (the “insiders”) -- New York City trust companies were not clearinghouse members, and this distinction is notable.

We argue that the declining monopoly of New York City national banks (associated with

the New York Clearinghouse) over the call loan money market was the key defining difference between 1907 and the prior crises. As a result, the coinsurance arrangement that prevailed among the late 19th century New York Clearinghouse banks and the New York Stock Exchange brokers broke down. In 1907 trust companies and interior banks, both intermediary types beyond the direct influence of the New York Clearinghouse banks, likely initiated the contraction in call market liquidity, but the panic still affected all US banks including those central to the payment system. The New York City banks, with a large proportion of their assets held as call loans, apparently could not maintain liquidity in the call loan market, and as a result imposed a suspension of convertibility of deposits into currency.

By 1907, the risks arising from outside the clearinghouse – the combined impact of trust companies and interior banks lending directly on the call market without intermediation by the clearinghouse banks, and related issues like unmonitored risks – compelled reform of the banking structure throughout the various banking interests. The movement toward establishing a central bank gained crucial momentum when the New York City banking forces added their support, and the changing participation in and the apparent failure of the call loan market were key elements to this transition.

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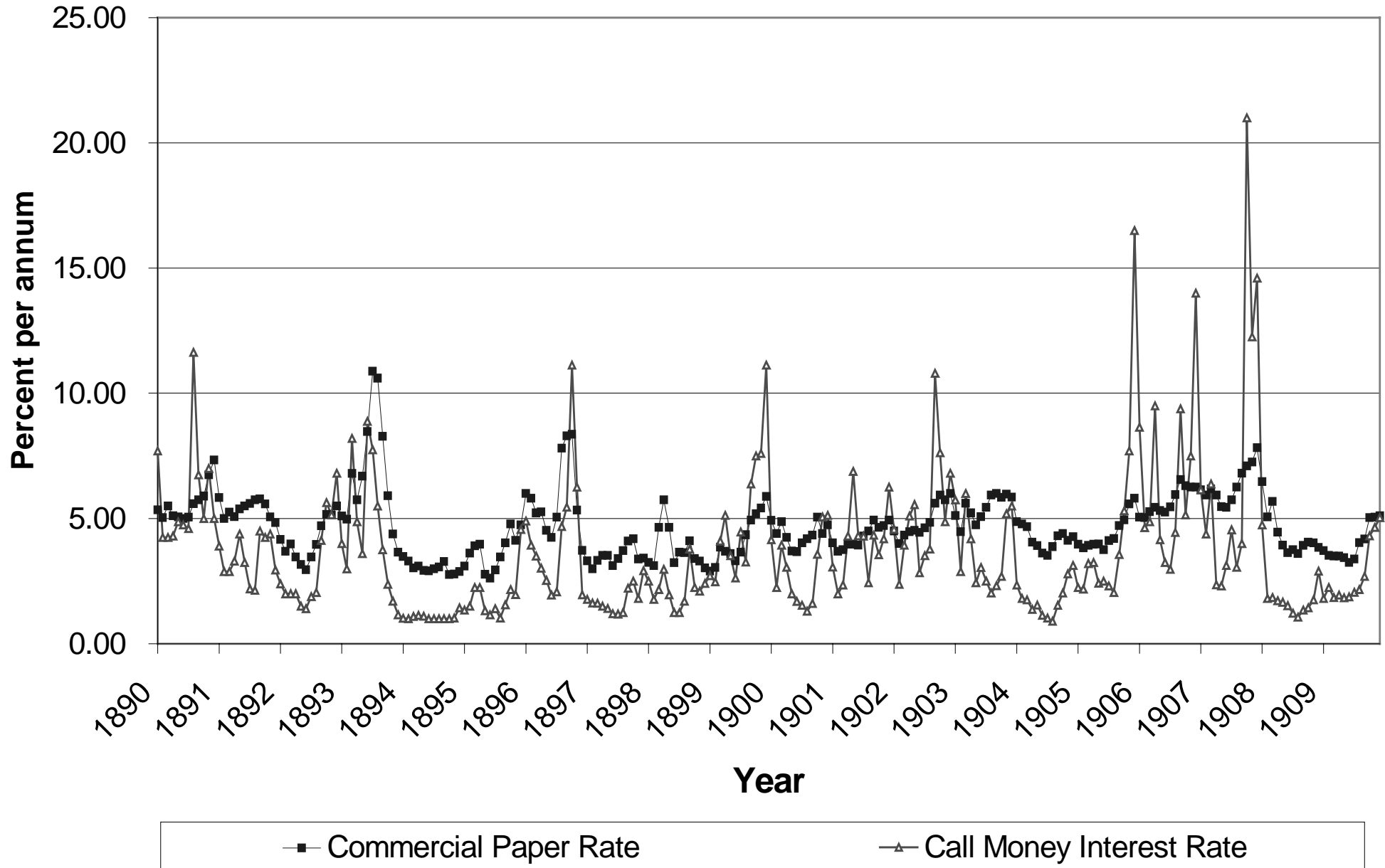
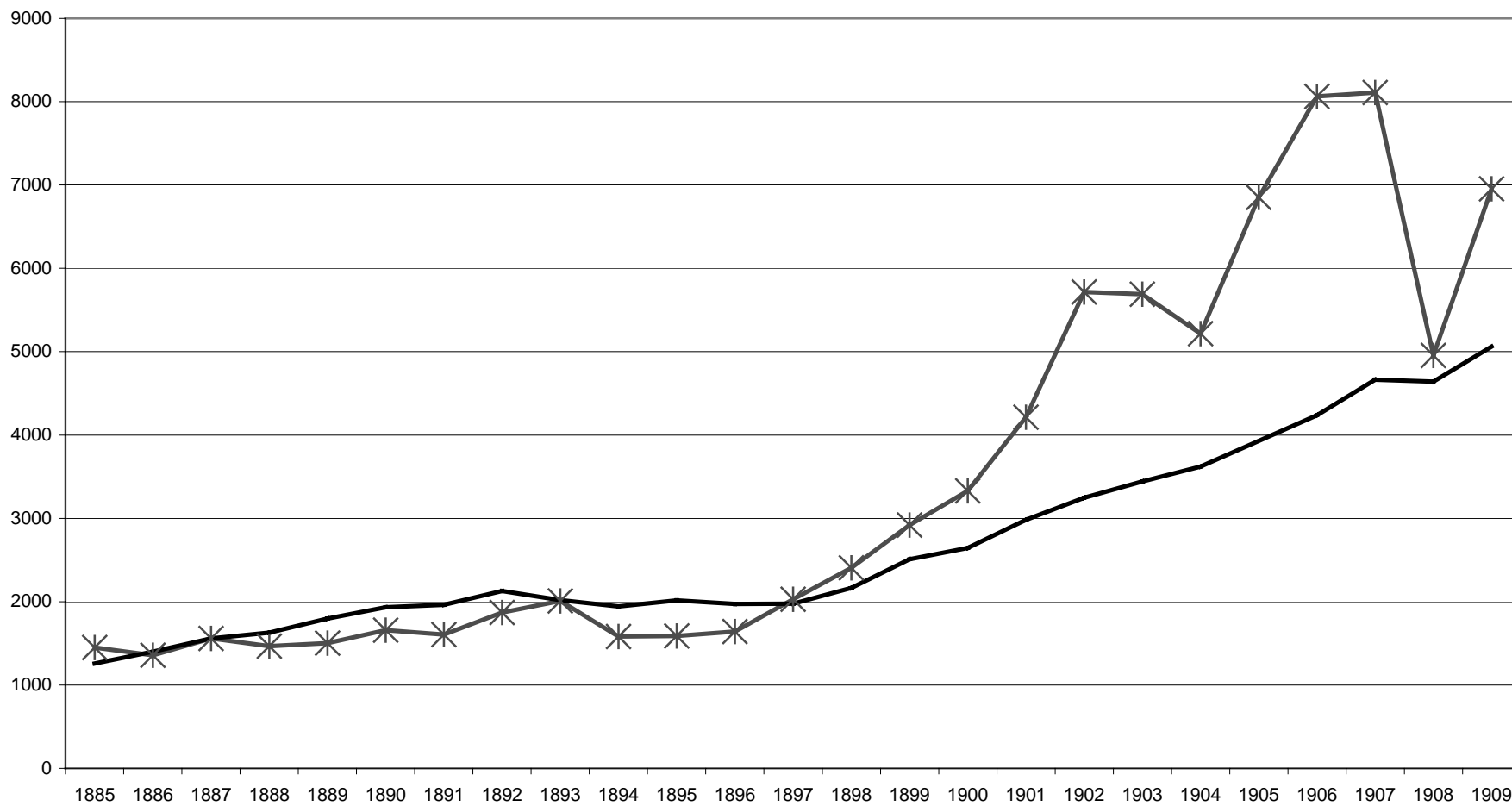
Figure 1: US Short-term Interest Rates, 1890-1909

Figure 2: Stock Market Capitalization in US Dollars



Sources: Stock Capitalization (Jovanovich and Rousseau 2001), National Bank Loans (National Monetary Commission 1910)

