EXPLAINING CREDIT PROBLEMS IN THE U.S. CONSUMER DURABLE GOODS INDUSTRY IN THE 1930'S: CREDIT CHANNEL OR BANK LIQUIDITY PREFERENCE?

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ABSTRACT

Argument is made, contra Temin, that the recovery of the consumer durable goods industry in the 1930's was stalled by a breakdown in markets for dealers' inventory financing and consumer installment credit. The Friedman-Schwartz-Hamilton-Bernanke view holds that durable goods sector credit problems in the Depression were linked to Federal Reserve tightening measures via the "credit" channel of the transmission mechanism. The view is expressed that , though the FED could have done more to ease conditions, congestion in markets for wholesale and retail finance developed for reasons largely unrelated to the prevailing course of monetary policy. A shift, beginning in late 1930, in the average preference of banks for liquid and/or re-discountable portfolio assets, or a change in bank liquidity preference, is interpreted to be a primary cause of diminished credit available to durable goods retailers and buyers during the 1931-33 period. The bank liquidity preference hypothesis is supported by data on the shifting composition of bank assets in favor of investment grade securities, a fall in the ratio of loans to deposits, a steepening of the Treasury yield curve, as well as the time path of high-powered money after 1930.

JEL Classification Codes: *N22, E21, E44*

Key words: *Great Depression; Liquidity Preference; Credit Channel*

> Credit is the pavement along which production travels; and the bankers if knew their duty, would provide the transport facilities to just the extent that is required in order that the productive powers of the community can be employed to full capacity.
>
> J.M. Keynes, *Treatise on Money*, II, 220.

1. INTRODUCTION

The nature and significance of monetary factors in business cycle fluctuations is an especially difficult and controversial issue. A constitutive principle of the New Classical economics is that changes in the quantity of money not fully anticipated by agents are capable of (temporarily) dislodging the economy from its long run growth path (see Lucas 1977). For all its formal elegance, the New Classical approach is subject to the criticism that, in its strict reliance on noisy price signals to produce non-neutral money, it ignores much of what is known about the real world connection of monetary factors to

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the pace of production and exchange. For example, it is widely understood that a vast number of small businesses (and indeed, many larger ones) could not survive without the continuous renewal of loans which enable these units to bridge the interval between the disbursement of factor costs and the receipt of income from the sale of goods or services. It is also known that a sudden change in the policy of lenders with respect to revolving and installment credit is likely to have an impact on expenditure for consumer goods.

That monetary policy is passed to real output and employment through a "bank lending" channel is the substance of the "credit" view of the transmission mechanism. (see Bernanke and Gertler 1995). The argument is made here, contra Temin (1989), there is solid evidence to indicate that the recovery of the U.S. consumer durable goods industry in the 1930s was stalled by a breakdown in markets for dealers' inventory financing and consumer installment credit. Does it follow that the prolonged slump of consumer spending in the Depression was caused by FED tightening? The purpose of this article is to argue that, although credit problems *were* a significant cause of the protracted slump in spending for consumer durables in the 1931-33 period, and that the FED could and should have done more to stabilize the situation, these problems nevertheless developed for reasons *largely unrelated* to the prevailing course of monetary policy.

Rising *bank liquidity preference* is defined as an increase in the average preference of commercial banks for assets which offer high liquidity and low capital uncertainty. The claim is made here that a change in bank liquidity preference can come about exogenously—meaning, independent of any shift in the course of monetary policy. It will be argued that pervasive non-price rationing of wholesale and retail credit in the first half of the 1930s was the repercussion of a seismic, and *exogenous*, shift of bank liquidity preference that commenced in late 1930.

The article is organized in seven sections. The credit view of the transmission mechanism is briefly summarized in section 2. The concept of bank liquidity preference is developed in section 3. Section 4 describes the behavior of the consumption series in the Depression. Section 5 examines the importance of non-price credit rationing in holding back the revival of spending for automobiles, appliances, and other big ticket consumer items after 1930. Section 6 weighs the evidence in favor of alternative explanations of credit rationing during the period. Concluding remarks are contained in section 7.

2. THE CREDIT CHANNEL

How is monetary policy transmitted to real output, employment, and the price level? These questions have attracted an immense expenditure of intellectual resources.[1] In contrast to standard interpretations of the transmission mechanism which rely on interest rate (or cost of capital) effects, wealth effects, exchange rates, or unanticipated

[1] For a brief summary, see Mishkin (1995).

money or inflation, the credit view holds that monetary initiatives have real effects primarily because they alter the scale of bank intermediation.

The simplest formulation of the credit channel presupposes that bank lending activity is constrained by reserves, or high-powered money, a magnitude the monetary authority is thought capable of influencing. A "central" bank is one so immense, with so many assets, that is has the power to force *all* other banks into "adverse" or "favorable" clearings by the expedient of open market operations (see Neale 1981). An adverse clearing for the banking system as a whole (induced by the sale of securities by the central bank) means that, at clearing, banks *overall* suffer a decrease in deposits (and reserves).[2] The monetary authority has "withdrawn" reserves from the system, or reduced the monetary base—hamstringing banks that seek to accommodate the demand for credit.

Bernanke and Gertler (1995; 1999) have presented a more sophisticated version of the credit channel—one that applies to a system where banks can always attract new deposits at *some* price. The *external finance premium* (EFP)—the difference between the cost of funds raised externally and the opportunity cost of internal funds—is the key variable. The EFP ostensibly measures the deadweight cost associated with the principal-agent relationship that exists between lenders and borrowers. Monetary policy impinges on the EFP via two channels (1): the balance sheet channel; and (2) the bank lending channel.

In theory, the EFP should diminish as the quality of firms' balance sheets improve. The balance sheet channel is based on the proposition that policy initiatives (such as open market operations) can have a wide ranging impact on asset prices (not restricted to short-dated gilt-edged issues or near monies, but also including longer dated bonds and equities) and thus the quality of firm balance sheets. As decisions by firms to acquire *new* tangible capital are partly conditioned balance sheet factors (or the EFP), fluctuating quality of firm balance sheets can propagate business cycles through the "financial accelerator" (Bernanke and Gertler, 1989).

The bank lending channel is of more direct relevance to the current inquiry. The EFP arises from informational problems in loan markets (evaluation costs, monitoring and collections, and the "lemons" premium). Bernake and Gertler (1999, 20) explain that:

> A decline in asset values reduces available collateral, leads to an unplanned increase in leverage on the part of borrowers, and impedes potential borrowers access to credit. Financial intermediaries, which must maintain an adequate ratio of capital to assets, can be deterred from lending, or induced to shift the composition of loans away from small business.

[2] In the ordinary course of banking, some banks will experience favorable and others adverse clearings. The interbank reserve (federal funds) market enables the redistribution of reserves from those banks with favorable clearings to those which experience adverse clearings.

The effect described above by Bernake and Gertler can be treated analytically as a shift of the supply of credit. Other things being equal, the change in the supply of credit causes the EFP to rise and thus actuates a contraction of borrowing.

3. BANK LIQUIDITY PREFERENCE

G.L.S. Shackle has described the theory of liquidity preference as “Keynes’s most inalienable piece of original economic thought” (Shackle 1967, 14). Liquidity preference is the formal means by which important institutional sources of macroeconomic instability are incorporated into the Keynesian system. Keynes argued that the evolution of markets for industrial securities was crucial in terms of facilitating the rapid accumulation of tangible capital goods in the modern industrial era. By furnishing the individual wealth holder with the opportunity to convert financial assets to money at short notice, such markets served to reconcile the desire of the public to hold wealth in liquid form with the fundamental illiquidity of man-made instruments of production.[3] Heightened uncertainty about future economic conditions (or about the possible movements in financial asset values) is manifest in a general "flight to liquidity" which, as was stated above, is made effective by the development of institutions and market-making systems which render securities liquid on a continuing basis. Rising liquidity preference is therefore capable of bringing about a change in the structure of securities prices and yields. As will be argued subsequently, the decision of commercial bankers to hold their portfolios in more or less liquid form has implications not only with respect to financial asset prices, but also with regard to the price and availability of bank-intermediated finance.

What is meant by the term *bank liquidity preference*? The phrase is used here to connote the average preference of commercial banks for portfolio assets which offer a high degree of liquidity. What are the salient characteristics of bank assets which render some more liquid than others? One obvious factor is marketability—that is, do well-developed secondary markets for the asset exist? Another attribute which belongs under this heading would be the eligibility (or ineligibility) of the asset for rediscount at the Federal Reserve discount window.

A third factor is less obvious, namely, does the asset confer on its holder refuge from what Joan Robinson (1979) defined as *capital uncertainty*? Endeavoring to refine the concept of liquidity preference, Robinson noted assets were differentiated in terms of

> uncertainty of future capital value, or capital-uncertainty for short, due not to any fear of failure by the borrower but to changes in capital values owing to changes in the ruling rate of interest. (This is the main ingredient in Keynes’ conception of liquidity preference. He regards the rate of interest primarily as

[3]Keynes wrote that “the question of the desirability of having a highly organized market for dealing with debts presents us with a dilemma. For, in the absence of an organized market, liquidity-preference due to the precautionary motive would greatly increase; whereas the existence of an organized market gives an opportunity for wide fluctuations due to the speculative motive” (Keynes 1936, 171-172).

> a premium against the possible loss of capital if an asset has to be realized before its redemption date) (Robinson 1972, 140).

The factor that makes short dated Treasury issues a nearer cousin to (narrowly-defined) money than, say, shares listed on the New York Stock Exchange is not necessarily the superior marketability of the former asset as compared with the latter. Rather, it is the lesser degree of capital uncertainty attached to Treasury bills *vis á vis* equities. Projected into the institutional context of bank portfolio management, rising liquidity preference means a shift in the desired composition of bank assets in favor of narrowly-defined money and near monies such as government securities at the expense of less liquid assets such as agricultural, real estate, mortgage, small business, and consumer loans. [4]

Several factors may serve as a catalyst to rising bank liquidity preference. Interest-bearing liabilities of banks tend to have short maturities and their yields tend to move in sympathy with rates offered by commercial paper, Treasury bills, and other short dated instruments. If there is a maturity imbalance between liabilities and banks' holdings of securitized assets, an increase in the spread between long and short-term rates (or a steepening of the yield curve) would increase the effective return to holding securities, and thus make marketable assets more attractive in comparison to loans. Deteriorating macroeconomic conditions may adversely affect the assessment of banks with respect to the creditworthiness of current and prospective borrowers and therefore raise the subjectively-formed appraisal of lenders' risk attached to loans. Note also that fluctuating asset prices (of real estate, land, or equities) are likely to modify bankers' (subjective) appraisal of capital uncertainty attached to the *existing* portfolio of loans, since these things often serve as collateral. Banks are likely to put greater emphasis on liquidity in reaction to heightened regulatory zeal. Also, bankers will naturally desire to have their portfolios concentrated heavily in securities and re-discountable notes if public confidence in the financial system is wavering.

The state of bank liquidity preference is subject to episodic shifts which may have no direct connection to the prevailing course of central bank policy. Indeed, a desire by the monetary authorities to ease credit conditions can easily be frustrated by a mounting appetite for liquidity by banks. A fairly recent example of this phenomenon is given by the U.S. credit crunch in the Spring and Summer of 1991. Attempts by the Federal Reserve Open Market Committee to ease credit conditions in the Spring of 1991 were successful in putting downward pressure on the yield of short dated securities. However, long-term rates did not fall in sympathy. By rolling over short dated liabilities at lower yields, banks were able to increase their "margins" on holdings of longer dated government securities. [5]

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[4] The use of *derivative instruments,* whereby a money manager has the option of selling a market basket of financial assets at a specified price at a future date, is strategy to hedge capital uncertainty suited to the needs of institutions (such as pension funds) with immense and diversified holdings. See Rubinstein (1987).

[5] See Greenspan (1991) and Bernanke and Lown (1991).

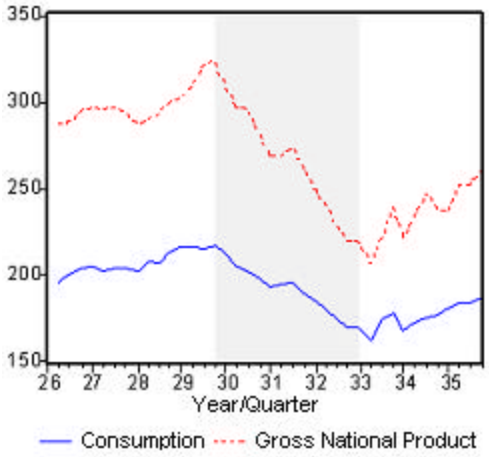
Note that a decision to make portfolios more liquid can be executed only gradually, since banks are typically "locked-in" to sizable positions in loans with remote maturity dates. The immediate effect of rising bank liquidity preference is therefore a contraction in flow of new loan extensions. Modeled in a partial equilibrium framework, rising liquidity preference would ostensibly be represented by a shift of the "supply of bank finance" schedule in interest rate-credit space. The interest rate or price of bank credit would, in theory at least, adjust to bring the demand for bank credit into equality with supply. However, there is wide support in the monetary literature for the supposition that the interest rate is *not* a rationing device in the market for bank finance. [6] Loan market transactions are unique in that the "seller" faces the possibility of default on the part of the issuer of the IOU as a consequence of the disappointment of expectations or moral hazard. Thus, there is always an unsatisfied fringe of notional borrowers. It is useful to think of the population of borrowing agents as being arranged in a hierarchy or queue, their position relative to each other being determined by their credit ratings. Agents on the bottom rungs never get credit (at least in the above ground economy), even if general credit conditions are lax. Those in more favored positions, such as the Treasury and successful corporations, usually have their credit needs accommodated even in the midst of a crunch. As a practical matter, the most serious repercussion of rising bank liquidity preference is the crowding-out of borrowing units falling between those two extremes.

[6]See, for example, Stiglitz and Weiss (1981), who set forth model wherein non-price credit rationing can be interpreted as an *equilibrium* phenomenon. They define the equilibrium interest rate as the one which maximizes bank profits per dollar lent. Since lenders have incomplete information about the creditworthiness of prospective borrowers, the interest rate charged may affect the riskiness of the total loan portfolio. As such, lenders use the interest rate as a *screening* device: "The interest rate which the individual is willing to pay may act as [a] screening device: those who are willing to pay higher interest rates may be, on average, worse risks. . . . As the interest rate rises, the average 'riskiness' of those who borrow increases, possibly lowering bank profits" (393). Thus the interest rate which equates the supply and demand for credit may diverge from the interest rate which maximizes lender profits.

4. CONSUMPTION IN THE 1930S

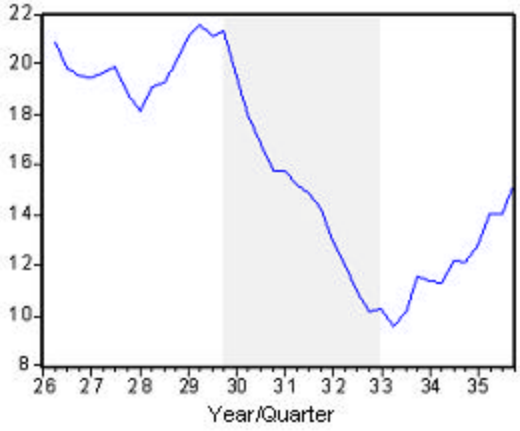
The stylized facts of the Depression are well known. The National Bureau of Economic Research business cycle chronology designates August 1929 as the starting point of the "great contraction" that has its trough in March 1933 (the shaded areas in Figures 1 and 2). Domestic manufacturing output fell by about 56 percent. Estimates of Gordon and Balke (1986) indicate that annual spending for producer durable equipment declined to $3.66 billion (1972 dollars) from a peak of $17.4 billion. There was a comparable slide in production of consumer durable goods. The durable series peaked at $21.35 billion and subsequently $9.61 billion (annual rates) in 1933—a staggering 55 percent decrease in real terms (see Figure 2).

Figure 1: Consumption and GNP in the US, 1926-35
(billions of 1972 dollars)



Source: Gordon and Balke (1986), Tables 2 and 3, pp. 794-823

Figure 2: Consumer Durable Spending in U.S., 1926-35
(billions of 1972 dollars)



Source: Gordon and Balke (1986), Table 3, pp. 822-823

The originating cause(s) of the sharp turnaround of consumer spending in late 1929 and 1930 is a continuing source of dispute in the literature, though there is support for the view that the behavior of the durable goods series during this time can be interpreted analytically as a change in the *parameters* of the (Keynesian) consumption function as opposed to a passive movement along a "stable" function in income-consumption space brought about by a decline in autonomous spending (i.e., investment).[7] Temin (1989, 43) writes that the decline is consumer spending in the year 1930 was "too large to be explained easily". Mishkin (1978) claims that there was a change in the composition of household balance sheets in favor of illiquid durable goods in the years preceding the stock market crash and that households, by reducing spending for durable goods, sought to restore the desired liquidity to their balance sheets.[8] Hall (1986, 252) explains the exogenous change in consumption by a

[7] See Temin (1976, 71) for example--especially Table 8. Also see Hall (1986).
[8] Mishkin also cited the depressing effect of consumer debt.

"random shift in household behavior towards less work and less consumption". Romer (1990) attributes high significance to the stock market crash. [9]

Table 1: Consumption Expenditure in the 1919-21 Recession and "Phase I" of the Depression

Period	Change in Total Consumption (billions of 1972 dollars)	Percent Change	Change in Consumption of Durable Goods (billions of 1972 dollars)	Percent Change
Dec 1919 to March 1921	-$8.46	-5.10	-$9.34	-48.70
Apr 1921 to June 1921	$7.77	4.96	$1.77	18.00
Aug 1929 to March 1931	-$23.35	-10.70	-$6.16	-28.90
April 1931 to June 1931	$1.64	0.84	-$0.32	-2.10

Source: Gordon and Balke (1986), Table 3, 822-823

The consumer spending series during the great contraction can be subdivided into two phases: (1) phase I: the 20 months from August 1929 to March 1931; and (2) phase II: the 21 month period beginning in April 1931. Two factors militate in favor of such a demarcation. First, estimates of Balke and Gordon (1985) reveal that consumption expenditure (measured in 1972 dollars) actually *increased* by $1.64 billion (or almost 1 percent) between April and June of 1931. Second, the behavior of the consumption series during phase I conforms reasonably well to the pattern displayed in the 1919-21 recession (see Table 1), though the "recovery" from the latter episode was stillborn. Thus the main problem to be addressed in this paper can be stated somewhat differently: why did the consumer spending slump of the Depression extend through the period designated above as phase II? The evidence points to a significant role for credit, or more precisely, a lack thereof.

5. CREDIT AND CONSUMER DURABLE SPENDING

Temin has argued if non-price credit rationing had been an important factor in the Depression, it should have revealed itself in the cross-sectional pattern of performance among business units. That is, the output of industries populated by small firms should have declined more than industries dominated by larger, more credit-worthy firms. But, says Temin, "[t]he cross-sectional pattern of industrial decline shows . . . that access to credit did not determine which industries declined" (Temin 1989, 53-54). Temin's position does not take account of the fact that credit problems afflicting small business units are capable of reverberating back to large manufacturers if the latter are dependent on the former to sell their goods.

The development of a mass market for big-ticket durable items such as kitchen ranges, automatic furnaces, electric washing machines, refrigerators, and automobiles was a key structural change of the 1920s. Manufacturers such as Singer and General Motors quickly discovered that the successful marketing of expensive durable goods was contingent on the development of a wide-ranging and effective network of retail

[9] In contrast to the conventional approach working through net wealth effects, Romer claims the Crash was important because it contributed to uncertainty about future economic conditions.

distribution.[10] Manufactures encountered early stumbling blocks as they sought to upgrade retail distribution systems. Most durable goods dealers or franchisees were small businessmen who lacked the resources to finance inventories internally. The external finance needed to carry expensive inventories was not readily forthcoming from the banking system. As Martha Olney (1989, 385-386) explains, the general reluctance of commercial banks to accommodate the need for credit to finance dealers' inventories was a major problem in the inchoate phase of the automobile industry:

> Until about 1915 dealers financed small inventories internally. But after 1915 the size of inventory increased and most dealers needed some form of external financing to carry inventories. Existing avenues for financing were inadequate. Manufacturers could not afford to offer direct factory credit and banks refused to offer adequate inventory financing because of the cancellation clause in the dealers' franchise agreement.

The successful marketing of durable goods also required the capacity to offer installment financing to the customer at the point of sale. In fact, the maturation of the consumer durable goods sector would have been impossible if not for the parallel growth of installment financing arrangements as well as a reconstruction of social attitudes toward consumer borrowing. The mushrooming use of consumer credit is a salient feature of the 20s. Consumer credit outstanding doubled in a six year span between 1923 and 1929. Much has been written about the importance of installment finance in stimulating the growth of the automobile industry.[11] The percentage of General Motors cars purchased on installment increased from 29.2 to 55.9 between 1920 and 1926.[12]

Direct participation of commercial banks in markets for wholesale and consumer finance was marginal prior to 1935.[13] Specialized sales finance companies accounted

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[10] Alfred Chandler (1988, 230) argued the prevailing pattern of vertical consolidation in consumer durable goods industries, wherein firms such as Westinghouse moved downstream into previously non-integrated stages of production, could be explained by the inadequacy of existing systems of wholesale and retail distribution to the requirements of modern, high-volume production: "[V]olume producers of durable goods . . . discovered that the wholesaler was unable to handle the initial product demonstrations to customers, unable to provide the necessary consumer credit, and unable to provide continuing repair and service of goods sold".

[11] Rolf Nugent (1939, 93), for example, wrote that "the shortage of instalment facilities had put greater restraints upon the sales of automobiles than upon the sales of most other types of consumers' durable goods. The remarkable growth of instalment finance companies after the World War solved the problem of retail financing . . . From the beginning of 1922 to the Fall of 1929 the growth of passenger car sales was paralleled by an even more rapid growth in the number of instalment finance companies and in the net amount of retail automobile instalment contracts . . . held by these companies".

[12] This figure is taken from Kuhn (1986, 80).

[13] Juster (1966, 56) attributed the "huge expansion of commercial bank participation in the consumer installment credit market after 1935" to "[l]egislation passed . . . to facilitate the financing of home improvements permitted the Federal government to guarantee up to 20 percent of the face value of home improvement loans; such loans were defined broadly enough to permit the inclusion of household durable goods".

for the majority of direct loan extensions in these markets. Though estimates indicate that there were approximately 1500 such companies in 1925, the industry was dominated by the "captive" finance units such as General Motors Acceptance Corporation (GMAC). [14] Historical accounts reveal that the integration of durable goods manufacturers into the finance industry was motivated by a dissatisfaction with the performance of the banking sector in this sphere. A letter dated March 15, 1919 (the date of the public announcement of the formation of GMAC) from GM President William Durant to J. Amory Haskell, GMAC's first president, contained the following comments:

> The magnitude of the business has presented new problems in financing which the present banking facilities seem not elastic enough to overcome. . . . Hence the creation of General Motors Acceptance Corporation; and the function of that Company will be to supplement the local sources of accommodation to such extent as may be necessary to permit the fullest development of our dealers' business (quoted in Sloan 1964, 303).

Ford formed its first finance unit (Universal Credit Corporation) in 1928 and then sold it in 1933. Kuhn (1986, 275) claims that Henry Ford's aversion to credit had damaging consequences: "[W]hile Ford extensively integrated his firm, he kept the vital activity of credit provisioning outside his controlled sphere. He refused then to admit that the mass production and mass distribution of consumer durables--no matter how cheap--demanded mass finance to clear the market pipeline".

Though their direct participation in markets for wholesale and installment financing was limited, banks nevertheless held the key to the system. Sales finance companies were highly leveraged as measured by the ratio of assets to capitalization. Lacking access to disintermediated markets for credit, the viability of these units was based on securing lines of credit at banks as well as the regularized discounting of consumer receivables by the commercial banking sector. Nugent (1939, 95-96) writes:

> The very earliest instalment finance companies relied heavily upon the use of bank credit to supplement their working capital. Later, the principal instalment finance companies began to sell their short-term notes to banks, either directly or through commercial paper brokers. . . . . The instalment finance company, therefore, was an intermediary agency . . . in the sense that it served to bridge the gap between the consumer and the commercial banks.

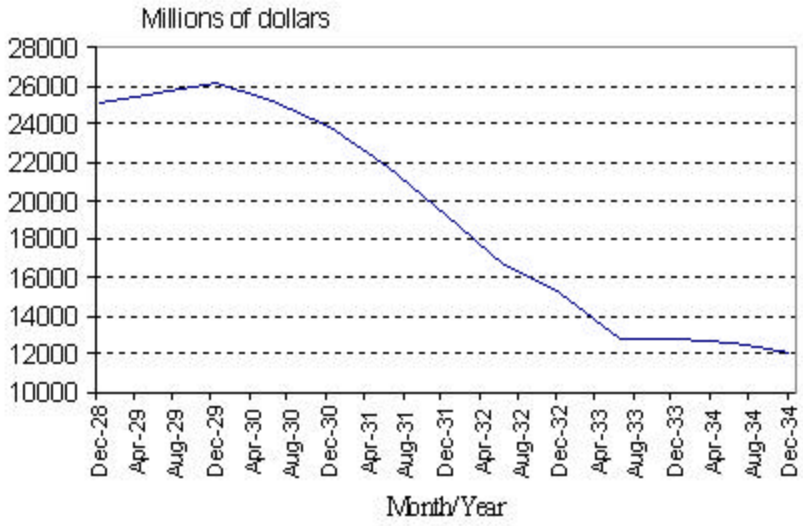
Taking into account the reliance of big manufacturers on a highly articulated network of small retailers (as described above), congestion in markets for wholesale and retail finance would almost certainly have slowed production of consumer durable goods. Moreover, there is strong evidence of pervasive non-price rationing of credit to small business during 1931-33. This evidence includes: (1) data on commercial bank loans

[14] See Olney (1987, 377).

outstanding; (2) data on consumer credit outstanding; (3) newspaper reports; (4) surveys; (5) the push to amend the Federal Reserve's Regulation A so as to make consumer receivables eligible for discount; and (6) the expanded role of the "captive" finance unit.

What is the precise meaning of non-price credit rationing in the present context? Specifically it refers to the withdrawal of credit (either partially or wholly) from business firms or households that previously enjoyed access to credit. Moreover, these agents are unable to find alternative sources of credit on any reasonable or economically viable terms. Figure 3 reveals that loans outstanding of federally-chartered commercial banks fell by 46 percent between December of 1930 and June of 1933. The trend indicated by Figure 3 gives circumstantial evidence in support of the rationing hypothesis, though one cannot know the relative importance of rationing versus a decrease in the demand for credit in explaining the fall-off.[15]

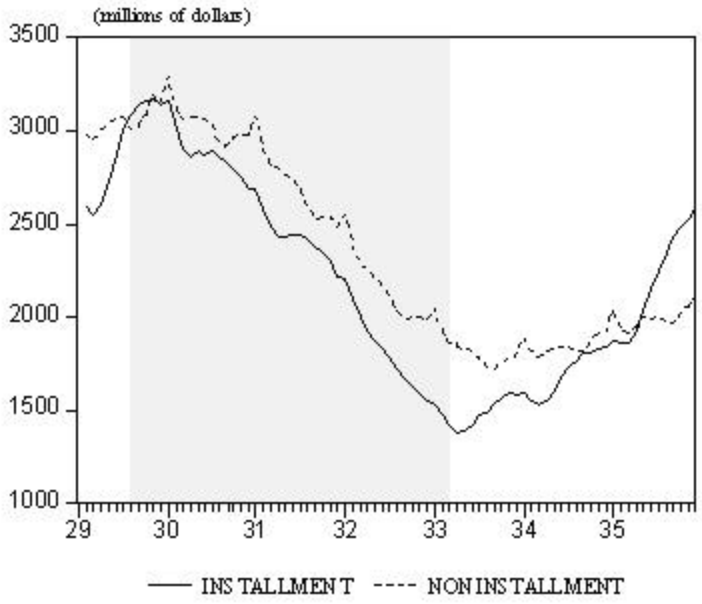
Figure 3: Loans Outstanding of Federally-Chartered Banks, 1928-34



Source: Board of Governors of the Federal Reserve System

[15] Note that contracting current or planned output would lead, *ceteris paribus*, to a decrease in the money loans) related to the *finance* motive to liquidity. Davidson (1978) writes that "the finance motive [relates] the demand for transactions balances to planned, contractual, and *expected* spending propensities"(166).

Figure 4: Estimates of Consumer Credit Outstanding, 1929-35



Source: *Federal Reserve Bulletin*, April 1953, Table 7, p. 354

More evidence is provided by Figure 4, though again it must be pointed out that some part of the decrease in consumer credit outstanding likely resulted from a general reluctance of households to layer balance sheets with additional debt.

Newspaper reports of difficulties encountered by small business owners in renewing bank credits proliferated in the early 1930s. [16] Complaints of unreasonable collateral requirements imposed by lenders were commonplace during this time. A report submitted to the Secretary of the Treasury in 1935 surveyed 2,600 actual or potential borrowers in Federal Reserve District Seven. The authors reported that there was a "genuine unsatisfied demand for credit by solvent borrowers. . . .The total amount of this unsatisfied demand for credit is a significant factor . . . in retarding business recovery" (Quoted in Stoddard 1940, 272). The Small Business Review Committee of the Department of Commerce completed a nation-wide survey of credit conditions facing small business (defined as firms with less than 150 employees) in 1938.[17] Of the 6,000 firms which responded to questionnaires, 600 were designated for a special sampling based on their high credit ratings. Of this group, 45 percent reported difficulty in obtaining short-term loans for working capital purposes.[18]

It was earlier mentioned that eligibility for rediscount is an important dimension of asset liquidity. For notes eligible under Regulation A, the Federal Reserve Bank is the *de facto* "buyer of last resort." Throughout the 1931-33 period, sales finance company

[16]For example, see "Tight Credit Hits Retailers," *New York Times*, March 20, 1932, Section II, 19:4.
[17]*Report of the Small Business Committee*, U.S. Department of Commerce, March 1938. The study covered the period from 1933-1937.
[18]The results of this survey are summarized in Stoddard (1940).

complained of a change in attitude among bankers towards their receivables. A key factor making consumer receivables, or finance company paper backed by installment loans or short-term loans to dealers, unattractive to liquidity seeking banks was the ineligibility of these assets for rediscount. Prior to the Banking Act of 1935, Regulation A applied only to a narrow range of short-dated, "self-liquidating" instruments. As such, the Federal Reserve could not, by means of its discounting operations, be relied upon to stabilize the market for consumer finance under tight credit conditions.

That contemporary observers were concerned with the problem of credit rationing seems obvious from the broad effort to liberalize the Regulation A guidelines. For example, Herbert Hoover proposed a bill in November 1931 which would have made finance company paper eligible for rediscount. The National Association of Finance Companies (NAFC) had long favored such a change, but stepped up its lobbying effort in the early stages of the Depression. NAFC General Manager C.C. Hanch, speaking in support of the Hoover plan, noted that it would

> have the desirable result of decreasing finance charges and thereby stimulating the purchase of installment goods. . . . It is important to make this paper eligible in case of emergency. Less than 10 percent of paper eligible now is rediscounted, but the banks need all they have and a great deal more as a reserve quickly convertible into cash. [19]

An emergency provision to Regulation A was adopted in 1932. It expanded the range of assets eligible for discount to include finance company paper, albeit with a special "penalty rate" which was one percentage point above the official discount rate. The emergency provision was made permanent with the 1935 Banking Act, and consumer installment paper was made eligible for rediscount in 1937. [20]

An interesting aspect of our story concerns the role played by finance affiliates of the consumer goods manufacturers. As it evolved, the captive finance company (i.e., a finance company wholly owned as a subsidiary of a non-financial corporation) assumed the responsibility to act as lender of last resort of behalf of its parent company. [21] If dealers found local sources of credit drying up, it was incumbent upon the finance affiliate to supply an alternative. The power of the captive finance units to "lean against the wind" was largely based on their capacity to circumvent the prevailing system of bank intermediation. The large majority of sales finance companies could not float commercial paper directly and hence found themselves at the mercy of commercial banks. The superior access of finance subsidiaries to disintermediated markets for finance is explained by their structural ties to the firms such as Westinghouse. [22] The

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[19]"Finance Companies Want Their Paper Eligible for Discount," *New York Times*, November 2, 1931, 32:1.

[20]For a discussion, see Hunt (1940, 34-37).

[21]For a discussion of the role of the captive finance unit in stabilizing the auto finance market during the monetary contraction of 1980, see Brown and Viar (1990).

[22]Banner writes : "In the market for funds, the captive finance company has better credit than most independent finance companies. Its affiliation with an important manufacturing firm is advantageous. . . .

finance company enjoying the strongest position was GMAC. In comparison to virtually any other durable goods manufacturer, GM had better success in keeping its dealer network intact through the Depression. Our period is coterminous with the displacement of Ford by GM as the leading automaker. GM's ascendancy is mainly explained by the effectiveness of the "mass-class" strategy pioneered by Alfred P. Sloan in a marketplace which by the late 1920s was dominated by replacement demand. However, as Kuhn (1986) and others have noted, that the fact the GMAC was at the time the largest and most creditworthy sales finance company in the U.S. gave its parent company a significant advantage over rivals in overcoming the credit problems of the early 1930s.

6. THE EVIDENCE

The main issue addressed in this article: should the non-price rationing of bank-intermediated finance that plagued the durable goods industry during 1931-33 be viewed as interstitial segment of the channel through which a contractionary monetary regime was relayed to real sector variables? Or, did congestion in markets for bank intermediated finance appear for other reasons—specifically those delineated in section 3 above?

How in theory might FED policy have influenced the scale of bank lending? Specifically we are seeking to uncover “credit channel” effects or factors that would make commercial banks less willing or able to purchase finance company receivables, or make direct loans to consumer goods retailers or consumers. Banks may fail to accommodate the need for credit due to: (1) a lack of creditworthiness (real or perceived) among potential borrowers; (2) a shortage (or prohibitively costly) reserves; and/or (3) a desire for liquidity.

There is no disputing that Federal Reserve policy became “highly contractionary” (Hamilton 1987, 147) in 1928 in reaction to gold outflows and what was perceived as excessive stock market speculation.[23] To the extent that FED selling of securities caused the stock market crash of October 1929 and ensuing spoilage of household and firm balance sheets, it may have contributed to the durable goods industry credit crunch by the pathway described by (1) above. This seems a tenuous link, however. It requires first of all that one assign a major responsibility to the FED in inciting the selling panic—something most economic historians are not willing to do. Second, we must believe that the balance sheets of specialized finance companies (whose assets consisted mainly of loans to dealers and consumers) were, as a result of the crash, damaged to the point of making these units nonviable borrowers in the assessment of bankers.

To be sure, the historical record supplies evidence of inept monetary management. For example, the FOMC resisted taking substantive action to stabilize credit markets in 1931 despite evidence of credit shortages in the immediate aftermath of the “first wave”

Credit policies that reduce the availability of credit will bear more heavily upon the independent than upon the captive firm” (Banner 1958, 249).

[23] See Friedman and Schwartz (1963, 290) and Temin (1993, 89).

of bank failures in December 1930.[24] Lester Chandler (1971) wrote that the "neutral" policy stance of the FOMC from July 1930 to August 1932 reflected the "liquidationist" views of its membership—that is, a painful process of debt liquidation was a necessary corrective for excessive credit expansion in 1928 and 1929.[25] "Real bills" adherents such as FED Governor George Norris opposed making financial assets or IOUs "backed" by other IOUs (such as finance company notes) eligible for discount. This policy had particularly unfortunate consequences for the durable goods sector. As was explained in section 5, the unbroken flow of credit extensions to durable goods merchants and buyers was enabled by the regular purchase of finance company paper by banks. Rising liquidity preference would have caused banks to eschew finance company receivables *even if* the quality of these assets had remain unchanged. With the benefit of hindsight, the policy respecting the rediscount of finance company receivables should have eased far earlier.

The aims and results of FED policy after 1929 are difficult to sort out. Let *M* denote the (nominal) money stock, *H* is high-powered money, *R* is bank reserves, *D* is bank deposits, and *C* is currency held. The following identity can be derived:

$$M \equiv H\left(\frac{\frac{D}{R}\left(1+\frac{D}{C}\right)}{\frac{D}{R}+\frac{D}{C}}\right)$$

Note that $\partial M/\partial H > 0$; $\partial M/\partial(D/R) > 0$; and $\partial M/\partial(D/C) > 0$. The Friedman-Schwartz view is (apparently) supported by the fact that the money supply (M1 and M2) decreased sharply during 1931-33. [26] The standard view posits *H* as the Fed's "control" variable. Therefore if the decrease in *M* was induced by Fed actions, this should have been revealed by a roughly coterminous decrease of high-powered money (*H*). But the evidence does not bear this out.[27] Says Hamilton (1987, 150):

> [L]ooking at M1 or M2, policy was more severe in 1931-1933 than in 1921, whereas on the basis of the monetary base we might have regarded monetary policy as actually expansionary during 1931-1933.

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[24]Lester Chandler (1971, 154), writing about the FOMC meeting on January 21, 1931, noted that "all agreed that the depression was deepening, bond markets were weak, and foreign issues were virtually unsaleable in the American market. Yet no one advocated further purchases of government securities; the only question at issue was whether to sell, and if so how many and under what conditions".

[25] Lionel Robbins (1935, 62) on the liquidationist view: "All that is contended is that when the extent of mal-investment and over-indebtedness has passed a certain limit, measures which postpone liquidation tend to make matters worse".

[26] For example, Friedman and Schwartz (1963, Table A-1) report that M1 fell by 5.7 percent in 1931, 15.5 percent in 1932, and 6.1 percent in 1933.

[27] See Friedman and Schwartz (1963, Table B-3). The cumulative growth of high-powered money during 1931-1933 was 13.9 percent.

December 1930 saw the failure of 352 banks (including the Bank of the U. S. with deposits of $200 million). The New York FED reduced the discount rate and purchased $123 million in securities. The FOMC shifted to a more neutral stance the following month. Britain's abandonment of the gold standard in September 1931 precipitated a massive gold outflow as central banks and others converted dollar-denominated deposits to gold. The FED reacted by raising the rediscount rate from 2½ to 3½ percent. Despite the rise in bill-buying rates, FED discounts increased to the highest levels since 1929. The FED commenced with large scale purchases of securities in April 1932.[28]

Bank runs occur because agents wish to substitute currency for bank deposits, so it is no surprise that that the *D/C* ratio fell off markedly in 1931. Chandler pointed out that "[b]y August 1931 currency in circulation was actually $136 million above its level of 2 years earlier and $471 million above its low point in 1930, this despite the continuing fall of economic activity" (Chandler 1971, 147). A rise in the monetary base does *not* necessarily signal an increase in the aggregate capacity for loan expansion if the composition of the base is rapidly shifting in favor of currency at the expense of bank reserves. But countervailing forces (e.g., gold inflows and open market purchases) prevented bank reserves from diminishing, and indeed the record shows that bank reserves increased slightly in 1931 and 1932 (See Chandler 1972, Table 10-1). Many banks evidently concluded that reserves were better used to decrease their liabilities to the FED (mainly loans and acceptances of the Federal Reserve to member banks) rather than make additional loans. Bernanke (1983, 264) noted that "fear of runs led to large withdrawals of deposits, precautionary increases in reserve-deposit ratios, and increased desire for very liquid and rediscountable assets". Chandler (1971, 149) reports that some officials

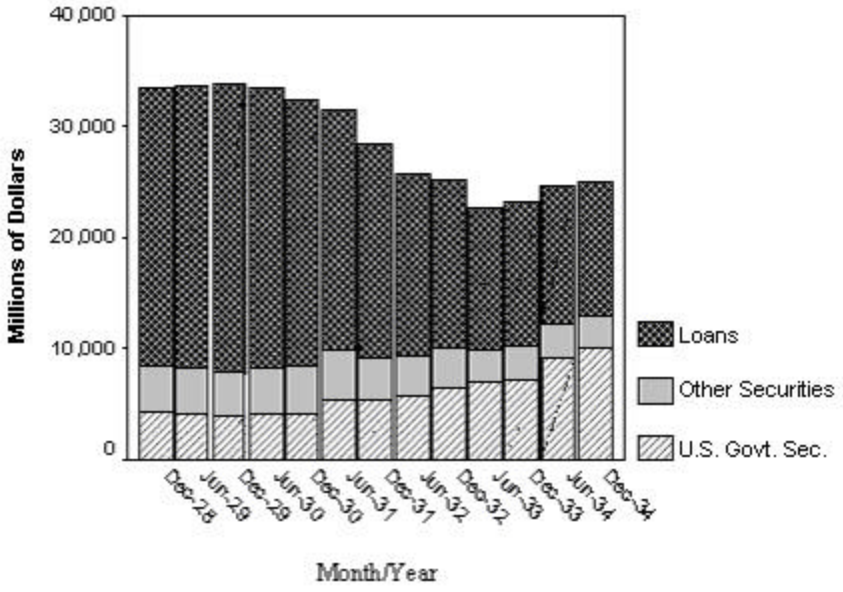
> commented with increasing frequency on the growing unwillingness of member banks to show in their statements borrowings from the Federal Reserve, and greater demands of banks for liquidity, and the unwillingness of banks to assume the risks involved in borrowing and lending.

Others have arrived at similar conclusions. For example, describing the ineffectiveness of expansionary measures in 1932, Kennedy writes that "outstanding bank credit did not increase, and business activity and prices of securities and commodities continued to decline. Once again the Federal Reserve had failed to

[28] The direction of FED policy during 1932 is disputed. Epstein and Ferguson (1984) argue that FED policy was expansionary in the Spring of 1932 but the FED terminated this course in the summer. Coelho and Santoni (1991) use weekly data on "bank reserves plus federal reserve notes in circulation" to support the view that "prior to March 1932 FED policy was restrictive; in the third week of March a policy reversal occurred, and the proxy for high-powered money grew (with minor interruptions) at a rapid rate until the end of 1932. The proxy grew at an annual rate of 17.1 percent for the rest of the year"(Coelho and Santoni 1991, 186). Lester Chandler (1971) designates August 1932 as the start of the FED monetary expansion.

convince bankers to abandon their conservative stance on lending" (Kennedy 1972, 47-48).

Figure 5: Portfolios of Federally-Chartered Banks, 1928-1934



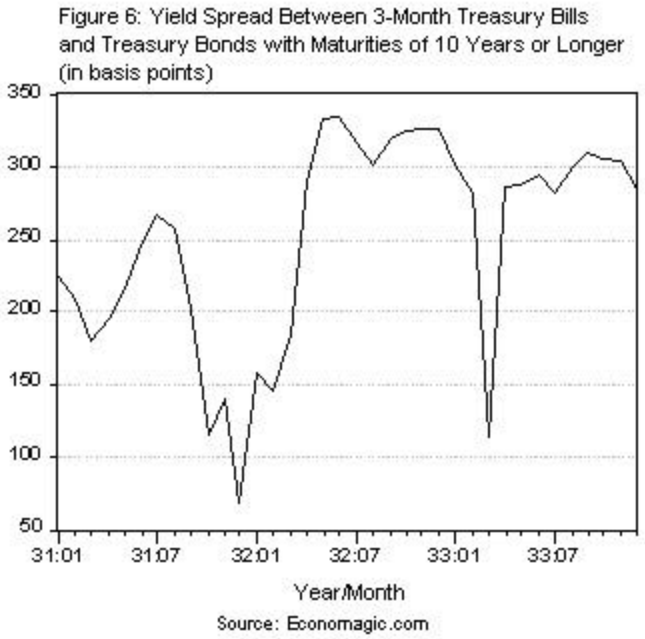
Source: Board of Governors of the Federal Reserve System

A general description of the shape of commercial bank portfolios in the period under study is provided in Figure 5. A discernable pattern emerges beginning in 1930. September of that year marks the starting point of a protracted decline in the (nominal) value of loans outstanding at federally-chartered banks. This trend takes place alongside an increase in the value of securities held. Loans were equal to 77 percent of (earning) assets of federally-chartered banks in December 1929. By June of 1933 that figure had slipped to 57 percent. Securities or "investments" as a percent of earning assets jumped from 23 to 43 percent during the same period. The sharp rise in the percent of bank assets accounted for by government securities is a well-known fact about the era.[29] A change FED policy can under certain conditions manifest itself in a change in the shape of the Treasury yield curve. While it is generally agreed the that the FED can target the prices and yields of short dated Treasury issues, its influence over long term interest rates is more problematic (and certainly less predictable). A FED effort to drive down yields of Treasury bills would make the yield curve steeper if long

[29] Epstein and Ferguson (1984, 969) comment, for example: "By the middle of the Great Contraction, bank portfolios in many districts were beginning to assume a curious shape. . . . As loans and bonds became increasingly risky bankers looked around for ways to maintain earnings. In due course, they began to purchase larger and larger quantities of the safest asset that remained available in large quantities--short-term government securities. Whereas in 1929 investments made up less than 30 percent of member bank portfolios, by the end of 1933 they made up almost 50 percent."

term rates do not move in sympathy. Note also that an ascending gradient of the Treasury yield curve would render long dated Treasuries relatively more attractive to banks, *ceteris paribus*. This conclusion follows from the fact that the course of banks' costs tends to closely follow the yields of short-dated instruments, or what we refer to today as "near monies."[30] The record reveals, moreover, that both the yields of short-dated Treasuries and the average rate of interest paid by banks on time and savings deposits fell sharply between 1931-33 (See Gilbert 1986, Chart 2).

Figure 6 displays a proxy for the yield curve—the spread between yields of 3-month Treasury bills and bonds with maturities greater than 10 years (in basis points). Holding the (expected) return from making a loan constant, the reward for "parting with liquidity" (that is, making loans) is, from the banks' point of view, inversely related to the spread between interest paid on deposits and interest received on securities held. Thus one factor which may have prevented bankers from carrying out their essential function was a determination to remain liquid so as to take advantage of a favorable yield curve.



Though the pattern of rising bank liquidity preference in the study period is well-established, does it necessarily follow that this factor had the side-effect of producing congestion in markets for dealers' inventory financing and consumer installment credit? Taking into account the structure of these markets, and in particular the intermediary

[30] This assumes no restrictions on rates paid on banks' deposits are in place. The Regulation Q provision of the Banking Act of 1933 (Approved March 9, 1933) prohibited the payment of interest on demand deposits and authorized the Federal Reserve to set interest ceilings on savings and time deposits. The Banking Act of 1935 made nonmember banks subject to the same controls.

status of the sales finance companies, it strains credulity to suggest that the price and availability of wholesale and consumer finance could remain unaffected by the phenomenon described above. Such a conclusion would first of all imply that the steep fall in credit outstanding between 1929 and 1933 (see Figured 3 and 4), as well as the contraction in new extensions of consumer credit during that period, could be wholly explained by demand-side factors such as weak spending for items bought on credit or a broad effort to improve the quality of household balance sheets.

7. CONCLUDING REMARKS

To summarize the arguments made here: Credit problems were a significant factor in stalling the recovery of the consumer durable goods sector during the 1930s. Second, a change in the average preference of banks for liquid and rediscountable assets can arise independent of policy initiatives of the monetary authority. The evidence shows there was a shift in bank liquidity preference in the U.S. during 1931-1933, a movement which at various points ran counter to the thrust of Federal Reserve policy. Finally, rising bank liquidity preference had the effect of producing congestion in markets for wholesale and retail consumer finance beginning in late 1930.

The positions articulated above should *not* be interpreted to mean that monetary authorities are incapable of producing macroeconomic tumult via a credit channel. Certainly the U.S. experience in the spring of 1980 (as one example) supplies evidence of functional credit channel (see Brown 1993, Chapter 6). The viewpoints expressed here are at the same time consistent with a fundamental theorem of Keynesian economics—that is, the presence of an entity with the power to influence interest rates or overall monetary conditions is *not* a necessary condition for money to matter. In the case under study here, a largely exogenous shift of the public and banks into liquid assets—meaning, those things which provide refuge in an uncertain environment—caused an attenuated flow of credit extensions to consumer goods retailers and buyers. In the standard presentation of Keynes's theory, changing liquidity preference of the public impinges on rate of interest, and is relayed to aggregate expenditure provided that at least one component of spending (e.g., investment) is interest-sensitive. The experience of the 1930s illustrates that shifting *bank* liquidity preference can bring about changes of real output and employment because the general availability of finance is (partly) regulated by it.

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