



American Finance Association

Structural Disequilibrium and the Banking Act of 1980

Author(s): Paul F. Smith

Source: *The Journal of Finance*, Vol. 37, No. 2, Papers and Proceedings of the Fortieth Annual Meeting of the American Finance Association, Washington, D.C., December 28-30, 1981 (May, 1982), pp. 385-393

Published by: Blackwell Publishing for the American Finance Association

Stable URL: <http://www.jstor.org/stable/2327339>

Accessed: 27/11/2009 08:14

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/action/showPublisher?publisherCode=black>.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Blackwell Publishing and American Finance Association are collaborating with JSTOR to digitize, preserve and extend access to *The Journal of Finance*.

<http://www.jstor.org>

Structural Disequilibrium and the Banking Act of 1980

PAUL F. SMITH*

THE COMPETITIVE PRESSURES released by the deregulatory provision of the Banking Act of 1980 have been building for three decades. They developed from the efforts of the financial system to raise the funds required for business growth and the "both guns and butter" policies of the government in the face of restrictive monetary policies. High interest rates would have appeared under any regulatory arrangements but the response in the United States has been accentuated and complicated by the structural features of the control system. Until recent years, the pressures introduced by these features have been of minor importance in the scale of events affecting the level of interest rates. However, they promise to become more important. The Banking Act of 1980 has preserved one of the most disruptive features of the old control system and has added a new dimension to the problem.

The problem arises from the invisible impact of the control system on the outcome of competitive decisions. Market rates and yields are an accurate guide to the cost of funds only if there are no hidden substitution effects. The problem of visible substitution effects has become a familiar one for savings institutions. They realize that they must take into consideration the implications of internal transfers of funds when they estimate the costs of raising rates on certificates. The same problem exists in a less obvious but inescapable way on all accounts included in the reserve base control network. When the reserve base is given, a gain in deposits by one bank has to be offset at least in part by a loss at another. The marginal cost of the new funds to the system as a whole is not the rate paid by the successful bank but the added costs of the new funds as a percentage of the net addition to the funds available to the system. If the rates and reserve requirements on the accounts are known, an accurate estimate of the cost can be made. For example, the cost of new CDs sold at a 18 percent yield is not the effective rate of 18.6 percent after a correction for a 3 percent reserve requirement but will also depend on the rate and the reserve requirements on the funds involved in the substitution process. If they are accounts with an assumed cost of 5 percent that carried a 12 percent reserve requirement, the cost of the new funds to the system as a whole will be 22.3 percent not 18.6 percent.¹

* Wharton School, University of Pennsylvania.

¹ The reserve base (B) by definition is equal to the sum of required (R) and excess reserves (E).

$$B = R + E \quad (1)$$

Required reserves are equal to the sum of the deposit accounts subject to reserves times the relevant reserve ratios. In a system with two sets of reserve requirements (r_1 and r_2), required reserves will be equal to the sum of the two types of accounts subject to the different reserve ratios (D_1 and D_2) times

Competition within an effective reserve base system operates under a special set of rules. Since the aggregate amount of funds within the system can be controlled within known limits, the cost of competitive transfers of funds depends on the relative costs of the funds involved and the reserve requirements on those funds. These calculations can be made for the system if the facts are known, but it is unlikely that they will be used as a guide to the competitive decisions of individual banks. If all of the bankers in the system were fully aware of the cost implications of their actions, they would recognize the decision process as a non-zero sum game of the type described in game theory as the "prisoner's dilemma."² In such a game the optimum position for the system as a whole can only be reached by collusion and cooperation. The successful efforts of any one bank to improve its position will worsen the position of others.

If the more likely assumption is made that bankers are unaware of the substitution effects, the market rate becomes a false signal that stimulates the reserve ratios.

$$R = d_1D_1 + d_2LD_2 \quad (2)$$

The limit to the size of the system (D) will be reached when excess reserves are zero and will be equal to the sum of D_1 and D_2 .

$$D = D_1 + D_2 \quad (3)$$

In the absence of changes in the reserve base (B) and excess reserves (E), the total size of the system can change only by shifts of funds among reserve classifications. The amount of the change is constrained by the size of the reserve base. Any increase in D_1 accounts must be offset by a decrease in D_2 accounts in the amount necessary to provide the required reserves for the new D_1 accounts.

$$\begin{aligned} 0 &= d_1D_1 + d_1D_2 \\ d_1D_1 &= -d_2D_2 \end{aligned} \quad (3)$$

The change in total deposits (ΔD) will be equal to the sum of the changes in D_1 and D_2 accounts.

$$\Delta D = \Delta D_1 + \Delta D_2 \quad (4)$$

By solving equation (3) for ΔD_2 and substituting the result in equation (4) the change in the total can be expressed in terms of ΔD_1 and the reserve ratios.

$$\Delta D = \Delta D_1 (1 - d_1/d_2) \quad (5)$$

Where:

$$\begin{aligned} \Delta D_1 &= 100 \\ r_1 &= .03 \\ r_2 &= .12 \\ \Delta D &= 75 = 100 (1 - .03/.12) \end{aligned}$$

If the rate paid for D_1 accounts is higher than that paid on D_2 accounts the average cost of funds will increase. The marginal cost (MC) can be computed as the sum of the changes in costs on D_1 (ΔD_1C_1) and D_2 (ΔD_2C_2) accounts divided by the net changes in total deposits (ΔD).

$$MC = (D_1C_1 + D_2C_2)/D \quad (6)$$

Where:

$$\begin{aligned} C_1 &= .18 \quad \text{and} \quad C_2 = .05 \\ MC &= .223 = (100 \times .18 - 25 \times .05)/75 \quad \text{or} \quad 22.3\% \end{aligned}$$

² See Luce and Raiffa, pp 94-102 in [5].

disequilibrating behavior. The use of market rates as a guide to competitive behavior leads to individual bank decisions that underestimate the marginal costs of competitive activities. If the bank is lucky, some other bank may have to absorb the costs of its underestimation. If it is unlucky, it will wonder why its plans turned out so badly. In either event, its actions lead to shifts in the aggregate cost function. The market feedback in such a system results in the persistent underestimation of the marginal costs of funds and in successive upward shifts in the aggregate cost function. It accordingly leads to changes in the equilibrium position and to persistent upward pressure on short-term rates.

This danger is inherent in any control system that successfully limits an aggregate total and that permits banks to compete for shares of the controlled total. The effect was minimized in the post World War II version of the Federal Reserve System when the member banks were prohibited from paying interest on demand accounts and were effectively excluded from the savings market by below market ceilings on savings accounts. It assumed more importance as the ceiling rates under Regulation Q were relaxed. But in this mild form it had the benign side-effects of assisting in the restrictive efforts of the monetary authorities. It became more important after the removal of the ceiling rates on large CDs. The freedom of member banks to compete as equals in the money market was an illusion. The market rates understated the cost of the competition. The hidden costs had to be absorbed by someone within the System. The costs of the substitutions created by these activities haven't been traced but it seems likely that they contributed the earnings problems at smaller banks and to the exodus of member banks from the Federal Reserve System that added some of the urgency to the passage of the 1980 Act.

The Bank Act of 1980 retained this disruptive feature of the old system and added a new one. The environment created by the Act provides an ideal breeding ground for the development of structural pressure on short-term rates. First, the right to pay interest on checking accounts opened up rate competition for those funds. Second, all of the possible forms of competition for accounts subject to reserve requirements have sizable cost implications. The marginal cost of competition for accounts that carry the same reserve requirements is infinite. The competition for these funds adds new costs without adding new funds. The marginal costs of substitution effects involving accounts with different reserve requirements will also be large. The rate spreads between "transaction accounts" and "nonpersonal time deposits" are large. The marginal costs of movements of funds between these reserve classifications will accordingly be large. Third, the competitive strength of money market funds that offer check writing privileges adds to the competitive pressures on banks and savings institutions and forces them into defensive rate competition on all types of accounts.

The possibility of a mysterious force on the supply side that keeps pushing short-term rates higher and higher seems to contradict the economic common sense that tells us that the demand side of the market will discipline any such hidden pressures. However, this possibility becomes more plausible when the role of these structural pressures in the determination of the level of rates is put into perspective. First, the aggregate effects of these structural pressures are likely to develop slowly and are likely to be relatively small by comparison with the major

forces shaping interest rates. Second, there is good reason to think that the demand for funds is not very sensitive to gradual changes in the level of rates. The irresistibility of government credit demands, the open-handed government support for other borrowers and the speculative pressures created by inflationary expectations are strong reasons for suspecting that these structural costs can be passed on to borrowers. A recent paper by Albert Wojnilower supports this position.³

The deregulatory provisions of the Banking Act of 1980 record the country's respect for competition as a tool for encouraging the efficient performance of financial markets. Everyone is aware of the potential for monopoly profits that arises from the special role of banks and other financial institutions in the creation of new money and in handling the vital movement of funds from savers to borrowers. Since a substantial share of the academic literature in this field is devoted to the problem of reducing monopoly profits, it is ironic that the structure we have designed to encourage competition and to control the money supply captures the monopoly profits of the financial process and gives them to the holders of money balances and money substitutes.

Cash managers have achieved a new status in this environment. They can often earn a better return on a company's operating balances than the company can make on its normal business operations. They have achieved personal success and wealth as the heads of new money market funds. It is hard to make a case for the economic productivity of these activities. High interest rates and inflation are world-wide phenomena but the cash management phenomenon that has appeared in the United States is not.

The first year

The major provisions of the Banking Act of 1980 were introduced in November 1980. We have now had a year of experience with those provisions. The control provisions were applied to all depository institutions that hold accounts of the type subject to reserve requirements. The new system is conceptually rather different than the old system that applied only to banks that were members of the Federal Reserve System. Almost every depository institution has some accounts that are captured in the control network. And every institution has sources of funds that are not part of the network. It is still possible, however, to separate the part of the system that is linked to the reserve base from the part that is not. But this distinction no longer refers to a separate set of institutions.

The total size of the financial share of the system that is linked to the reserve base has been measured by a statistical series labeled "Member bank deposits subject to reserve requirements."⁴ This total is developed from the reports submitted to the Federal Reserve System by individual institutions for the calculation of their required reserves. An estimate of the size of the unlinked segment can be obtained by subtracting the linked component and currency from

³ See [9]

⁴ See Table 1.22 "Aggregate Reserves of Depository Institutions and Member Bank Deposits," *Federal Reserve Bulletin*, October, 1981, p. A14. The deposit section of this table has apparently not been adjusted to the new regulatory system although conversations with different people within the Federal Reserve System produced different answers about the contents of the figures.

the estimates for the M_3 monetary aggregate.⁵ In October 1980, before the implementation of the new Act, deposits subject to reserve requirements amounted to 684.2 billion dollars and represented 37.7 percent of the M_3 monetary aggregated with currency excluded. In October 1981, after a year under the provision of the new Act and if the deposit series has been adjusted to the new coverage of reserve requirements, they amounted to 748.3 billion dollars or 37.0 percent of the total. If the deposit series has not been corrected, the best estimate based on other sources suggested that the linked component increased to about 40 percent of the total.

The accounts included in these two segments of the financial system represent a substantial share of liquid assets available to the public. They are in varying degree substitutes, and in competitive markets the spreads in the rates on these instruments should reflect differences in liquidity, risk and other important non-price features. The accounts linked to the reserve base are indistinguishable to the public from those with similar features that are not linked to the reserve base. They are distinguishable at financial institutions by the definition of accounts subject to reserve requirements and, once identified, by the added costs of meeting the requirements. The competitive markets envisioned by the deregulatory provision of the Banking Act should eventually establish appropriate spreads among all of these accounts. These spreads, however, will still conceal the hidden cost implications of competition for the accounts linked to the reserve base.

The problems of the transition have been accentuated by the huge spreads that had developed between unregulated rates and the legal ceilings on checking accounts and savings accounts at depository institutions. When the major provisions of the Banking Act of 1980 were introduced, short-term interest rates were at an all time high. The rates available in money market funds were far in excess of those available on checking and savings accounts under the old ceilings. The competitive movement of funds into money market funds continued but, in addition, the deregulation of rates on checking and savings accounts introduced massive movements of funds among accounts at depository institutions.

Two sets of structural pressures have been at work during the first year of the transition. The first set reflects the natural adjustments of rates from the old controlled structure to the new deregulated structure. The second set arises from the hidden costs of the competition for the accounts restricted in aggregate amount by the reserve base control network.

As long as market rates are above the old ceiling rates, the adjustments to the new regulatory rules can be expected to shift the cost of funds upward. Increases in rates paid on existing accounts or shifts of funds to new types of accounts that pay higher rates put purely structural upward pressure on rates. They lead to a higher cost of funds without adding to the supply of funds available for loans. Part of this impact can be measured from the published data. The decline in the traditional demand account item of 36.7 billion dollars from October 1980 to October 1981 compares with an increase of 46.7 billion dollars in "other checkable deposits." If it is assumed that there was a spread of 3 percentage points in the cost of these two types of funds, the shift of 36.7 billion dollars added over a

⁵ See Table 1.21 "Money Stock Measures and Components," *ibid.* p. A13.

billion dollars to the cost of these funds without adding to the supply of loanable funds. Similarly, a decline of 79.3 billion dollars in savings deposits compares with an increased 116.4 billion dollars in small-denomination time deposits. If it is assumed that the spread on these accounts was 5 percentage points, this shift of 79.3 billion dollars added 4 billion dollars to interest costs.⁶

These structural pressures on short-term rates can be expected to continue until the spreads among all types of contracts reach new equilibriums. The interesting unknown is the size of the equilibrium spreads between shares of money market funds and checking and savings accounts. The presence of money market funds that offer check writing privileges introduces a highly dynamic competitive force into the new deregulated environment.

Part of the hidden cost implications of the reserve base linkage has been discussed in the overall structural adjustments to deregulated rates. The shift from demand deposits to other checkable deposits occurred largely within the controlled part of the system since both types of accounts are subject to reserve requirements. The cost implications of competitive efforts to raise funds with negotiable CDs and other accounts subject to reserve requirements as "nonpersonal time deposits" are less obvious. It can be estimated that these deposits increased as a share of total deposits subject to reserves by about 6.4 percentage points or by about 43.8 billion dollars from October 1980 to October 1981. If the spread between the rate on transaction accounts and nonpersonal time deposits is assumed to be 10 percent, this shift represents an increase in the cost of funds linked to the reserve base by over 4 billion dollars.

Thus, it seems reasonable to estimate that 5 to 6 billion dollars was added to the cost of funds from purely structural changes within the part of the financial system linked to the reserve base during the first year under the new Banking Act. This amount is small but not insignificant when compared to the aggregate cost of funds. It represents a windfall gain to the suppliers of short-term funds that must be passed on to borrowers or absorbed in the profits of financial institutions. To the extent that it becomes a permanent part of the cost structure it can't be indefinitely absorbed as losses. It has to become part of the normal structure of profits and rates. The transition has been and will continue to be painful for many institutions. This hidden element of cost has added to the problem and cannot be justified either by the regulatory or deregulatory objectives of the Act.

Implications for the future

It is important to separate the purely transitional adjustments from the structural pressures that have been built into the control system. The first set will eventually disappear. The second set won't.

Successful price competition for any account subject to reserve requirements necessarily involves the substitution effects that are implicit in the linkage of these accounts to the reserve base. There are two sets of accounts involved: the transaction accounts that are for the most part subject to reserve requirements

⁶ These calculations were based on data for these items without seasonal adjustments as published in the *Federal Reserve Statistical Release*, H.6(508), Dec. 4, 1981, pp 6-7.

of 12 percent and the nonpersonal time deposits that are subject to reserve requirements of 3 percent. The hidden costs of price competition within the reserve base network can appear either through shifts in the composition of accounts toward higher rate accounts (i.e. from transaction accounts to nonpersonal accounts) or within either of the two reserve classifications as an increase in the average rate paid for funds. Both seem likely regardless of the overall level of rates.

The rates paid by banks and savings institutions on checking account balances are still relatively unattractive compared to the rates on available alternatives. Some types of checking services aren't available outside of the controlled system. But techniques for minimizing balances are. Zero balance cash management is a theoretical possibility for large businesses and minimum balances of a few hundred dollars are feasible for households and individuals. More importantly, checking facilities that pay close to money market rates are available on money market fund shares. As competition continues, the checking services on these shares are likely to improve. Rate competition isn't a very attractive option for banks on checking accounts but it may appear to be an inescapable defensive alternative. It seems likely that there will be an increase in the cost of these funds even if the level of interest rates continues to decline.

If the link between the reserve base and demand accounts were stable as is assumed in textbook models of reserve base control systems, we would know that the total supply of demand accounts (or transaction accounts in the new terminology) couldn't be decreased without a change in the reserve base. But in practice the U.S. control system has for many years linked more than one type of account to the reserve base and the nonmoney types of accounts have usually been more attractive. Most recently, the reserve base system has been giving its customers a choice between large CDs at money market rates and checking account balances. The choice isn't even close if a swap can be arranged. The money market funds have thrived on the opportunities presented by this choice by buying bank CDs and by offering depositors shares that carry checking account privileges. The shareholder ends up with a checking account that earns close to money market rates. The banking system ends up with more high cost funds and less low cost funds. The money market fund manager ends up with a fee for his role in the process. And the economy ends up with higher interest rates.

This option was retained by the control provisions of the Banking Act of 1980 and will continue to be a source of structural pressure on short-term interest rates. We can expect to see transaction accounts continue to decline as a share of total deposits subject to reserve requirements. The limit to the decline isn't obvious. The decline won't be limited by the "demand for money" because other techniques for payments are becoming available. It is possible to envision a financial system where "transaction accounts" at depository institutions will consist only of high-volume low-balance accounts and where important payment techniques exist outside of the monetary control system. This, of course, would imply not only higher structural costs but the failure of the new monetary control provisions of the Act to cover the newly developed means of payment.

Observations

The role of structural pressures in the determination of the level of interest rates has been and will continue to be slower and less obvious than other more important factors such as: inflationary expectations, government deficits and monetary policy. But these pressures have and will contribute to changes in institutional arrangements and to important and undesirable allocative effects. They favor the supplier of short-term funds at the expense of suppliers of long-term funds and they favor holders of money and near money balances at the expense of borrowers.

The freedom to pay interest on checking accounts has been acclaimed as one of the major deregulatory achievements of the Act. But this acclaim fails to recognize that competition for a controlled supply when the demand for funds is inelastic produces different results than competition in a model that assumes elasticity in the demand and supply functions.

The inclusion of nonpersonal time deposits in the control structure invites shifts in the composition of accounts within the control system from "transaction accounts" to more attractive alternatives. It can also be regarded as a built-in self-destruct mechanism for the monetary control objectives of the Act. It appears to reinforce the effectiveness of monetary controls because it reduces the growth of the M1B component of the money supply relative to the growth of the reserve base. But in making the controlled share of the money supply unattractive relative to uncontrolled means of payment or money substitutes, it forces payment activities into unofficial channels and into relatively expensive procedures for using money more efficiently. It perpetuates one of the problems that contributed to the urgency for the passage of the Act i.e. the development of money forms outside of the control system.

The inclusion of nonpersonal time deposits in the control provision of the Act was apparently an after thought. The largest component of this classification, negotiable CDs, has never been included in definitions of the money supply. Conversations with people involved in the final stages of the drafting of the Act indicate that this provision was designed in large part to prevent the loss of revenue to the U.S. Treasury that would have followed from the removal of deposits from the Federal Reserve System. Banks and savings institutions should not be required to hold reserves on these accounts with the Federal Reserve System. These accounts should be treated like personal time and savings accounts for control purposes.

There is a place in an orderly financial system for mutual funds that give their shareholders access to money market rates. However, the role of money market funds in the United States has been artificially enhanced by the structural features of the control system, by abnormally high short-term rates and by their ability to offer their shares as a form of money. They shouldn't be penalized for performing a service that the market needs but they shouldn't be subsidized with the privilege of offering checking accounts.

The control objectives of the Banking Act of 1980 were inescapable both in terms of the Constitutional mandate for the control of the money supply and in terms of repairing a deteriorating control system. But its success in achieving its

objectives is endangered by the inclusion of nonpersonal time deposits in the reserve base control network and by the omission of restrictions on checking accounts at institutions not covered by the control provisions of the Act.

REFERENCES

1. Axilrod, Stephen H. and Darwin L. Beck, "Role of Projections and Data Evaluation and Monetary Aggregates as Policy Targets," *Controlling monetary aggregates II: The Implications*, Proceedings of Conference at Melvin Village, New Hampshire (Federal Reserve Bank of Boston, 1972), pp 9-26.
2. Berkman, Neil G. "Open Market Operations Under the New Monetary Policy," *New England Economic Review*, Federal Reserve Bank of Boston, March/April, 1981.
3. Brito, D. L. and Donald D. Hester, "Stability and Control of the Money Supply," *Quarterly Journal of Economics*, (May, 1974) pp 278-303.
4. Fortune, Peter, "The Effectiveness of Recent Policies to Maintain Thrift-Deposit Flows," *Journal of Money, Credit and Banking*, (August 1975), pp 297-316.
5. Luce, R. Duncan and Howard Raiffa, *Games and Decisions*, (New York: John Wiley and Sons, Inc., 1958) pp 94-102.
6. Silber, W. L., "Open Market Rates and Regulation Q," *The National Banking Review*, Vol 4, no. 3, (March 1967).
7. Simpson, Thomas D., *Behavior of Member Banks, Required Reserve Ratios and the Effects of Board Actions, 1968-77*, Staff Economic Studies, no. 97, Board of Governors of the Federal Reserve System, 1978.
8. Smith, Warren L., "Time Deposits, Free Reserves and Monetary Policy," *Issues in Banking and Monetary Analysis*, editors Pontecorvo, Shay and Hart, (New York: Holt, Rinehart and Winston, 1967) pp 79-113.
9. Wojnilower, Albert M., "The Central Role of Credit Crunches in Recent Financial History," *Brooking's Papers on Economic Activity* 2, (Washington D.C.: The Brooking's Institution, 1980) pp 277-326.

DISCUSSION

R. E. LOMBRA*: Writing and teaching about the definition, measurement, analysis, and control of monetary aggregates occupies the waking hours of many monetary economists. However, with several seemingly different paradigms employed, and apparent disagreements among the experts common, students and central bankers should be forgiven for viewing such efforts as akin to trying to solve the Rubik's cube blindfolded.

As Sagan's *Cosmos* has suggested, bringing order, logic, and structure to bear on such perceptions of chaos is an evolutionary process, wherein many "black holes" of ignorance stubbornly persist. Santomero and Siegel (S-S) have produced a carefully written, competent paper which represents a good start on restoring order to the literature on monetary theory and policy.

Economists spend too little time "building bridges"; blowing up old bridges and searching for new islands often seems more rewarding. This paper is a long overdue effort at bridge-building. It presents an analytical framework with potentially important pedagogical, analytical, and empirical ramifications. The major objective is to combine the richness of the general equilibrium portfolio

* Professor of Economics, The Pennsylvania State University.