THE LINK BETWEEN MONETARY POLICY AND SAVINGS AND LOANS*

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ABSTRACT

This paper examines the effects of monetary policy on the Savings and Loan industry as measured by several accounting proxies of net worth. To accomplish this task, the paper employs two monetary measures along with four accounting measures of capital. The empirical results suggest that the growth of the money supply is a good leading economic indicator of the future health of the industry as measured by several net worth accounting measures.

I. INTRODUCTION

This paper seeks to examine the effects of monetary policy on the strength and performance of the S&L industry. The Savings and Loan (S&L) industry is currently undergoing a painful transition. In 1960 there were 6,000 S&L's compared to approximately 3,287 by April '87. (Of these, 450 were estimated to be insolvent.) This contraction occurred as a result of various mergers and bankruptcies within the industry. [1] During the first quarter of 1987, it was estimated that the Federal Home Loan Bank Board (FHLBB) would need between twenty five to thirty billion dollars to eliminate the current crisis. In fact, the FSLIC has seen its unobligated funds drop from nearly six billion dollars just three years ago towards a technical deficit in excess of almost eight billion dollars by May '87. At the time of this writing the Congress had passed the Competitive Equality Banking Act (1987), which included a \$10.8 billion recapitalization package that would permit the FSLIC to borrow up this amount over the next several years. [2]

Early work on the connection between monetary policy and S&L profitability emphasized the availability of

funds as the monetary policy link while other research stressed the unique asset and liability composition of S&Ls. [3] However, with the greater degree of deregulation in recent years one may now be forced to reexamine this relationship.

Another strand of the literature has analyzed the profitability of S&L's as the interest rate changes. These investigations have shown that the stock returns of an S&L is negatively related to the general level of interest rates. In fact, some researchers found the interest sensitivity of S&Ls to be twice that of commercial banks. [4] This suggests that the industry reacts negatively to higher interest rates. However, this paper will take the existing body of research one step further and examine whether alternative monetary policy measures such as the money supply, could be used as an indicator of S&L health and performance. To ensure that the thrust of monetary policy is properly measured, the paper employs the conventional simple-sum M1 monetary aggregate along with the experimental MQ money measure recently developed by Paul Spindt of the Federal Reserve System. [5]

II. A HISTORICAL PERSPECTIVE OF THE S&L INDUSTRY

The S&L industry has specialized in providing residential mortgages for well over fifty years. The industry was particularly encouraged by the passage of the Housing Act of 1948 which sought to provide a suitable living environment for all Americans. With interest rates relatively stable during the 1950's, the industry found that it could remain profitable without too much difficulty. Nonetheless, problems of disintermediation appeared in 1966, 1969, 1974, and 1981-1982. [6] In fact, the situation became especially critical during 1981-1982 as the industry lost nearly twelve billion dollars during this period. [7]

To eradicate these bouts of disintermediation, regulators permitted the industry to offer more attractive types of liabilities. These included: Jumbo CDs (JCD's, 1973), Money Market certificate accounts (MMC's, 1978), interest paying checking accounts (NOW's, 1981), and Money Market Deposit Accounts (MMDA's, 1982), along with Super NOW accounts (SNA's, 1982). JCD accounts permitted S&Ls to pay market related rates on time deposit accounts over \$100,000 while MMCs reduced that amount to as little as \$10,000. NOW's were checking accounts which earned rates comparable to passbook rates. MMDA's were introduced to compete with the rapid growth of money market mutual funds and SNA's were introduced to ensure that depository institutions would be able to effectively compete for depositors funds in the financial markets. Ironically, the creation of these new liabilities also hurt many S&Ls by significantly narrowing the spread between their cost of funds and the rate of return on their existing assets. During the early 1980's the industry observed this spread become negative as S&Ls funded older lower yielding mortgages with new and higher priced funds.

On a grander scale the Depository Institutions Deregulation and Monetary Control Act of 1980 (MCA'80), and the Garn-St Germain Depository Institutions Act of 1982 (DIA'82), made an aggressive attempt to improve the profitability of the assets held by the S&L industry. [8] First, title V of the MCA'80 removed usurious restrictions on some of the loans made by the industry. Second, the act empowered S&Ls to issue credit cards, and offer trust services. Third, S&Ls were allowed to have up to twenty percent of their assets in consumer loans, commercial paper, commercial real estate loans and corporate bonds. In April 1981, the Federal Home Loan Bank Board (FHLBB) continued this trend by permitting S&Ls to originate adjustable type mortgages to help the industry move towards matching the duration of their assets with those of their liabilities.

As an additional boost the DIA '82 enabled federally chartered S&L's to make business loans, increase consumer loans, and make commercial real estate loans up to 10%, 30%, and 40% of an individuals institutions assets respectively. In fact, the act permitted S&Ls to offer checking accounts to firms that had a banking relationship with a given S&L. The act also enabled S&Ls to purchase municipal revenue bonds up to 10% of an institutions capital and offer leasing arrangements up to 10% of an S&L's assets. However, one of the most important features of this act was that it authorized the FSLIC and the FDIC to merge troubled institutions more aggressively whenever conditions dictated such an action.

As problems mounted during the early 1980's, many states including California, Texas, Florida, Louisiana, Nebraska, Ohio, Maine and others moved to permit S&L's to purchase, develop, manage and sell real estate investments directly. It was not long before other S&Ls became more interested in participating in this opportunity in order to derive the risk re-

ducing effects of portfolio diversification. Benston recently demonstrated that this activity actually benefitted many S&Ls by essentially lowering their total risk through diversification. Nonetheless, in March 1985, the FHLBB moved to restrict direct investments to 10% of an S&L's assets or twice their equity. [9]

Other woes of the industry resulted from the industry practice of borrowing in the short term market to fund mostly long term fixed rate mortgages. This strategy will usually be profitable when interest rates are stable and the yield curve is upward sloping but generate significant losses whenever interest rates rise or when the yield curve becomes downward sloping. One obvious solution to this phenomena is to equalize the duration of the assets and liabilities held in the portfolios of S&Ls. [10] Alternatively, the duration of assets could be shortened in line with the duration of liabilities by originating only adjustable rate mortgages. Thus, it is ironic that the industry has recently argued that the decline in interest rates during the beginning of 1986 has made the pricing of adjustable rate mortgages a difficult task. [11] This is a nonsensical hypothesis because if adjustable-rate mortgages are priced to allow for a fair spread above the cost of funds then this spread should be invariant as interest rates change. In other words, as the level of interest rates drop (rise), one should expect the lower (higher) asset earnings to be fully offset by a lower (higher) marginal cost of funds.

Other researchers suspect that S&Ls have chosen their portfolio strategies in order to maximize their long run rate of returns. Moreover, this school of thought postulates that this practice has been encouraged by the moral hazard problem generated by the existence of federal insurance on deposits. [12] One should also note that this phenomena may have also been promoted by the current tax structure

which grants existing S&L's favorable tax status if they hold at least 60% of their portfolio in housing related investments. Although savings and loan associations were placed under similar federal tax rules as commercial banks in 1951, the industry has continued to enjoy this important tax loophole which permits S&L's to increase their loan loss reserves aggressively and thereby escape taxation.

III. EFFECTS OF MONETARY POLICY AND DATA EXPLANATION

The primary goal of this paper has been to decipher the effects of monetary policy upon the health and stability of the S&L industry. The consensus view in the economics profession is that changes in the money supply affect interest rates while the S&L literature (see footnote #4) strongly suggests that interest rates tend to influence the profitability and performance of the industry. Thus, the missing link in this explanation are the proper monetary lags and adjustment mechanism that are involved in this intricate process. For example, S&Ls have the option of forbearance and do not have to value all their assets at market values whenever interest rates change. Consequently a monetary policy which will adversely affect S&L performance is likely to be felt with long lags as the industry attempts to avoid reporting any or all of their market losses.

The money supply variables used include the simple-sum M1 aggregate and the MQ aggregate. The former simply adds up all its components and weights each monetary asset equally while the MQ measure weights each asset according to an estimate of the number of times that a monetary asset changes hands. Thus, it should come as no surprise that Spindt's estimates find that assets such as checking accounts generally have much higher turnover rates than assets like savings accounts. [13] Therefore, the goal of

the MQ aggregate is to develop a measure of money that minimizes the amount of savings funds that are included.

The S&L accounting performance ratios examined in this paper include: undivided profits (U), GAAP, TAP and RAP. All these measures are normalized by dividing each one by the total value of assets within the industry and are fully described below. [14]

- a. U - Undivided profits (i.e. retained earnings plus net undistributed income of the industry divided by the total assets of the industry.)
- b. GAAP - employs the Generally Accepted Accounting Profits definition of net worth and divides this amount by the total assets of the industry.
- c. TAP - Tangible net worth of the industry (i.e. GAAP less Goodwill) divided by the total assets of the industry. [15]
- d. RAP- A more flexible barometer of the industry's net worth divided by the total assets of the industry. This measure was developed by regulators to help the industry recover after its tumultuous years during the early 1980's. [16]

It should be noted that some accounting measurements are perhaps better indicators than others. For example, in order of general ranking one should prefer GAAP and TAP over RAP while some might view U as a reasonable profit measure. This is mainly because RAP permits S&Ls to incorporate various capital enhancers (mentioned in the previous footnote) that are not necessarily a function of the profitability of the industry.

IV. SOME EMPIRICAL EVIDENCE

Milton Friedman has perennially reminded us that the money supply

tends to affect the level of economic activity with long and sometimes variable lags. [17] To be sure, this paper examines the effect of various lags of money on several accounting performance measures of the industry. Ordinary least squares (OLS) regressions were conducted whereby the growth rate of the S&L performance measures were separately regressed against the growth rate of different moving monetary lags. The monetary lags reported in this paper included those of: one and a half years, and a three year lag.

The moving monetary lags were constructed every period by going back either 1.5 or 3 years to compute the relevant growth rate of the monetary measure. The regression results found a strong positive relationship between the money supply and the health of the S&L industry as measured by the accounting ratios described above. The strongest statistical performer was the MQ measure which explained movements in the GAAP, U, and RAP measures with a preferred lag of one and a half years while the TAP measure performed best with a 3.0 year moving lag. In contrast, the 3.0 year moving lag of the simple-sum M1 measure appeared to best follow the movements in all the performance measures. [18]

A closer examination of this statistical relationship could also be observed in the several graphs depicted in Figure's 1-3. The easiest way to trace the effects of monetary policy on the S&L performance variables is to break down the time periods into different time zones. More specifically, this paper will look at the following time periods: 1) 1978:1-1979:2, 2) 1979:3-1980:2, 3) 1980:3-1982:3, 4) 1982:3-1983:4, 5) 1984:1-1984:4, and 6) 1985:1-1986:3.

The moving growth rates of the money measures were quite stable from 1978:1 - 1979:2. As a result, it should come as no surprise that this was also a very stable period for all the S&L performance ratios. In contrast, the

FIGURE I
S&L PERFORMANCE RATIOS
QUARTERLY GROWTH RATES

FIGURE 2
MONEY

1.5 YEAR MOVING GROWTH RATES

Figure 3
MONEY

3 YEAR MOVING GROWTH RATES

economy experienced the beginning of a minor monetary contraction from 1979:3 - 1980:2, which was also accompanied by the start of a deceleration in the S&L ratios. This trend continued well into the second period from 1980:3 - 1982:3, as seen by both the 1.5 and 3.0 year money growth proxies. With the exception of the TAP variable, (which hit bottom the following quarter) all the variables reached their respective troughs by the end of the third quarter in 1982.

The period from 1982:3 - 1983:4 was a period of rapid monetary expansion. It should therefore, come as no surprise that all the S&L ratios, (especially the TAP measure), rose strongly during this period. Another rapid deceleration in the growth rate of the money supply occurred during 1984:1 - 1984:4. As the graphs indicate, all the ratios, (especially the TAP measure) experienced significant dips in their growth rates. Finally, during the last period from 1985:1 - 1986:3, the money supply continued to grow steadily using the 1.5 year measure while the 3 year growth path also grew with some minor setbacks. With the exception of the U variable, all the ratios maintained respectable growth rates.

All these empirical results are quite significant because they suggest that publicly available data on the money supply can provide regulators with useful information in predicting the future health of the industry. [19]

V. SUMMARY AND CONCLUSIONS

This paper has reviewed the evolution of the S&L industry with particular emphasis on what has occurred during the early 1980's. An important contribution of this work has been to document the close relationship between monetary policy and the health of S&L institutions. More importantly, this paper has shown that the growth of the money supply is a good leading economic indicator of the future health of

the industry. Results demonstrated that changes in the money supply with a lag of up to three years can give us advance information on the state of the S&L industry.

In a world in which regulators are moving towards putting more emphasis on the capital adequacy of the industry, regulators cannot afford to ignore the developments in monetary policy. However, one should also realize that the use of a proper measure of the money supply will probably continue to be an important issue in this endeavor. This is shown by the fact that the conventional simple-sum M1 aggregate becomes a good leading indicator of the S&L industry's performance only after it was redefined to incorporate many of the underlying financial innovations in financial markets.

This paper reinforces the proposition that money matters. It is therefore hoped that any future research on the performance of the S&L industry will continue to incorporate the effects of monetary policy.

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FOOTNOTES

- 1 For example, over 300 mergers took place in 1981 which more than doubled the previous record of 132 in both 1971 and 1974. For more information see: "Competition, Earnings Squeeze Spurs Mergers, *Savings and Loan News*, vol. 3, February 1982.
- 2 This paltry amount was being pushed by legislators who feared that higher amounts would permit regulators to close down some sick S&L's which could eventually recover with more time. See: "Congress Takes Steps to Enact FSLIC Recapitalization Bill," *Savings Institutions*, April 1987, 8.
- 3 George Daly, "The Impact of Monetary Policy and the Maturity of Savings and Loan Association Assets: A Critique of Reform Proposals," A Comment by George Daly, *Journal of Money, Credit and Banking*, vol.4, 2, (May 1972), 441-444. and Jack Vernon, "Savings and Loan Association Response to Monetary Policy," *Southern Economic Journal*, 32, (January 1965), 229-237.
- 4 Mark Flannery and Christopher M. James, "The Effect of Interest Rate Changes on the Common Stock Returns of Financial Institutions, *The Journal of Finance*, vol.39, no.4, (September 1984), 1141:53. and Dan W. French and Donald R. Fraser, "A Note On Interest Rates and the Risk of Bank and Savings and Loan Stock," *The Financial Review*, vol. 21, no.4, (November 1986), 551-558.
- 5 This new measure of money was developed in response to a growing money literature that has grown disenchanted with the existing money measures due to the ever growing level of financial innovations. See: Paul Spindt, "Money Is What Money Does: Monetary Aggregation and the Equation of Exchange," *Journal of Political Economy*, vol.93, no.1, (February 1985).
- 6 Disintermediation occurs whenever economic agents withdraw their money from financial institutions to invest those funds directly into the financial markets.
- 7 However, this amount still understates the actual degree of losses because many institutions refused to write down the value of their fixed long term mortgages made at significantly lower interest rates.
- 8 "The Depository Institutions Deregulation and Monetary Control Act of 1980," *Economic Perspectives*, September/October 1980, Research Department, Federal Reserve Bank of Chicago, pp.3-23. and The Garn-St. Germain Depository Institutions Act Of 1982, *Economic Perspectives*, March/April 1983, p.3-31.
- 9 A direct investment occurs when a loan is made to an entrepreneur for the acquisition, development and construction of property even though the borrower may have little or no equity in the project that is being financed. Alternatively a direct investment could occur when the lender accepts a share of the profits along with some management rights in order to compensate for the increased risk in the loan. See: George Benston, "Thriffs Failures and Direct Investment," *The Bankers Magazine*, May-June 1986. p. 55.
- 10 Another way of expressing this idea is to say that the duration of the assets should be set equal to those of the institutions liabilities. Optimal use of hedging tools in futures markets can also enable the industry to avoid the risks of a changing yield curve. For a good detailed explanation of this phenomena one should see: Mark Drabenstott and Anne O' Mara McDonley, "Futures Markets: A Primer for Financial Institutions," *Economic Review*, vol. 69, no. 9, November 1984. p. 22-25.
- 11 "Portfolio Managers urged to adapt to interest rate trends," *Savings Institutions*, April 1986, vol.107, no.4.
- 12 Dwight Jaffee and Kenneth Rosen, "The Changing Liability Structure of Savings and Loan Associations," *American Real Estate and Urban Economics Association Journal*, (Spring 1980), vol.8, no.1. and Ira Kawaller and James Freund, "Mortgage Lending At Savings and Loan Associations: A Further Inquiry," *Business*

- Economics*, (January 1981), vol.XVI, no.1, 39:44.
- 13 The simple sum-M1 components include: Currency, travelers checks issued by nonbank issuers, demand deposits at all commercial banks, and other checkable deposits issued by depository institutions. The assets used to compute the MQ measure include: currency plus travelers checks, demand deposits, NOW and Super NOW accounts, money market mutual funds money market deposit accounts and saving accounts subject to telephone transfers.
 - 14 Source of data is: Gillian Garcia, "The FSLIC is broke in more ways than one," Materials prepared for the *Cato Conference*, Washington, DC, February 26-27, 1987. The money supply and interest rate data was obtained from the Board of Governors of the Federal Reserve System.
 - 15 A good example of goodwill is found when an S&L buys another institution for than its book value. The difference is usually recorded as goodwill.
 - 16 Regulators have added various capital enhancers which have made the industry appear healthier. These include: appraised equity capital, income capital certificates, Mutual capital certificates, and Net worth capital certificates. For an excellent discussion of these items see: Savings Institutions Sourcebook, *United States League of Savings Institutions*, 1986, p. 12.
 - 17 Milton Friedman, "The Demand for Money: Some Theoretical and Empirical Results," *Journal of Political Economy*, vol.67, no.4, (August, 1959).
 - 18 A brief description of the equations tested using 1.5 year and 3 year moving lagged money measures are found below. It should be mentioned that all the t statistics of the monetary coefficients were statistically significant at the 95% statistical level or better.

Money Measure

RATIO'S	MQ	simple-sum M1
	2	2
	(R ² , lag.) (Coefficient, t-statistic)	(R ² , lag.) (Coefficient, t-statistic)
UNDIV	(.39, 1.5 year lag) (.99, 4.63)	(.18, 3 year lag) (.736, 2.67)
RAP	(.53, 1.5 year lag) (1.7, 6.10)	(.47, 3 year lag) (1.75, 5.41)
GAAP	(.59, 1.5 year lag) (.75, 6.87)	(.51, 3 year lag) (.131, 5.84)
TAP	(.50, 3.0 year lag) (2.11, 5.79)	(.46, 3 year lag) (2.98, 5.27)

- 19 It should be mentioned that the same identical tests were performed using the growth of the 90 day treasury bill rate as the money market proxy. Unfortunately, the explanatory ability of the equations was quite weak at all lag levels. In most cases the R-square ranged from zero to .14. Finally, it should be mentioned that simple quarterly growth rates of both the MQ and M1 monetary measures also generated disappointing results thereby suggesting that only persistent growth patterns tend to affect the industry.