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# THE DEMISE OF REGULATION Q DIFFERENTIALS: COMPETITION FOR HOUSEHOLD SAVINGS BETWEEN COMMERCIAL BANKS AND SAVINGS AND LOAN ASSOCIATIONS

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and

F. Jerry Ingram

Due to the key role played by Savings and Loan Associations and other thrift institutions in housing finance, changes in the competitive struggle between commercial banks and thrifts have important implications of the economy in general and the real estate industry in particular. One key variable in the structure of the bank-thrift competition for household savings (the single most important source of housing funds) is the set of interest rate ceiling differentials set up by Regulation Q and the Rate Control Act of 1966. In general, these artificial price controls give thrifts a quarter percentage yield advantage vis-a-vis commercial banks. For a variety of reasons many academicians, the American Bankers Association, consumer activists, and (more recently) the Carter Administration have called for an end to these rate restrictions, including the differentials.

The Financial Institution Deregulation and Monetary Control Act of 1980 which was signed into law on March 1980 includes a provision for the retirement of these rate differentials over the ensuing 6 years. While this legislation is likely to have a major impact on financial markets, one issue that has not been analyzed recently is the effectiveness of the thrifts' quarter percent yield advantage in accomplishing its basic purpose — to attract household savings into the thrifts and hence into the housing sector. These questions seem particularly worthy of investigation given the fundamental shift in the liability structure of thrifts from passbooks to certificates of deposits (CD's).

It is possible that over the last decade the thrift industry accepted regulations which systematically restricted opportunities for thrifts to diversify their asset structure and become broadly based, more cyclically stable family finance centers in exchange for periodic extensions of a rate differential that may have been too small to have been effective. If this is so, a great opportunity was given up with little to show for the sacrifice and, in this regard, the Financial Institutions Deregulation Act may have little meaningful impact. This fundamental issue is addressed in this article.

While the available data are too aggregated to allow definitive conclusions regarding the effectiveness of Regulation Q differentials, the evidence presented will indicate that at current levels the maintained rate differentials' ability to attract funds into the housing sector is, at least, subject to question. This issue has taken on heightened importance in light of the fact that (1) the first crack in the armor of Regulation Q appeared in early 1979 when yield differentials were dropped for money market certificates (MMC) when the allowable rates exceeded nine per-

cent and (2) the step by step elimination of these yield differential have now been legislated.

## THE PURPOSE

This paper examines the competition between the two most important types of financial intermediaries in the market for savings deposits. Commercial banks (CB's) and savings and loan associations (SLA's) are by far the most important financial intermediaries competing for household savings across the entire country. It has been argued that the general public views savings claims on banks and SLA's as close substitutes and, consequently, choice between them is determined by convenience (location) and interest rate differentials, among other factors (17). After reviewing the fairly extensive and diverse body of literature in this area, an attempt will be made to reexamine the competitive institutional changes.

## THE EVIDENCE

Following the system used by Gilbert and Murphy, the empirical evidence on the competitive relationship between GM's and SLA's can be divided conveniently into results obtained by either time series or cross-sectional studies (10, pp. 12-13). A summary of the results from both types is provided in Table 1.

### Time Series Studies

Among the time series studies, Silber used levels of interest rates to measure the response of bank time deposits to a unit change in SLA share yields and then reversed the field. In both cases the two assets were shown to have a substitute relationship, but SLA deposits were found to be significantly less responsive to bank interest rate changes than the obverse (18). Kardouche obtained the same general results using interest rate differentials, however, by partitioning the available data into sub-periods, 1952-59 and 1959-66; it was disclosed that the long-run interaction between these assets was unstable over different periods (14). Commercial bank time deposits were observed to vary independently of changes in interest rate differentials during the earlier period, but reacted in a manner consistent with their classification as substitutes for SLA shares during the later period. SLA shares also displayed a similar pattern of instability.

Various explanations have been offered for this apparent shift in pattern of interest rate sensitivity on the part of commercial bank time-savings deposits. For one thing, the superior quality of CB time-savings deposits (in terms of safety as perceived by investors, availability of funds and convenience of location) relative to SLA shares may have dominated deposit behavior of savers in the 1950's and submerged the interest rate effect (1,12). Secondly, successive upward revisions of the Regulation Q ceiling on time deposit rates that occurred after 1961 may have increased the ability of commercial banks to compete with savings and loan associations for savings-type deposits. Finally, it has been argued that there exists a time lag before changes in interest rate differen-

Table 1

Relationship between Savings-type Deposits at  
Commercial Banks and Savings and Loan Associations  
A Summary of the Empirical Evidence

Time Series:				
Silber	1953-1965	Quarterly Aggregate	$r_t^*$	Substitutes
Vernon	1947-1964	Annual Household	$r_s - r_t$	Substitutes
Kardouche	1952-1966	Quarterly Aggregate	$r_t - r_s$	Substitutes
Friend	1952-1959	Quarterly Aggregate	$r_t - r_s$	Independent
Cross-Section:				
Fiege	1949-1959	Annual States	$r_s$ $r_t$	Substitutes Independent
Lee	1956-1959	Annual Household	$r_s$ $r_t$	Substitutes Independent
Stevens	1948-1959	Annual Regional	$r_s$ $r_t$	Substitutes Independent
Hartley	1960-1964	Annual States	$r_s$	Substitutes
Kardouche	1960-1965	City	$r_s - r_t$	Weak Complements
		Rural	$r_s - r_t$	Substitutes
Boyd	1967-1968	Semiannual City	$r_t$	Substitutes (S&L Pass book) Complement (S&L Non pass book)

\*Rate that varied to induce change:  
 $r_s$  = yield on SLA shares

$r_t$  = yield on CB time deposits

Source: Gilbert, Gary G. and Murphy, Neil B., "Competition Between Thrift Institutions and Commercial Banks, Journal of Bank Research, Summer, 1971, pp. 8-18. (updated by authors)



tials influence the behavior of savers (20). Although interest rate differentials may have narrowed in favor of CB time-savings deposits during the 1950's, not until the 1960's did an appreciable redistribution of savings-type deposits into commercial banks begin to occur.

In the Kardouche study, shares displayed a highly unstable pattern of response to changes in interest rate spread. While a weak substitution relationship between SLA shares and CB time-savings deposits was indicated over the early subperiod (1952-1959), a complementary relationship was detected over the later subperiod (1959-1966) (14). The inclusion of a SLA advertising expenditure variable in the estimating equation, to identify the impact of promotional activities by these institutions, may have produced this puzzling result for the later subperiod. This is not to say that relative interest rate changes failed to induce substantial shifts in the public holding of the two assets during 1959-1966. It merely suggests that another relevant factor, namely SLA advertising, "is powerful enough to reduce the efficacy of the yield on time (savings) deposits as a competitive weapon" (10, p. 14).

In the Vernon time series study that receives the major share of attention in this paper, confirmation of the substitute relationship was obtained. Vernon found that a 3.14 percent decline in the CB share of household savings deposited at CB's and SLA's was associated with a one percent increase in the spread between SLA and bank time deposit yields. In addition, Vernon showed that yield spread alone explained (in his regression analysis) roughly three-fourths of the variation in bank's share of savings deposits (29). Moreover, his results indicate that banks could pay almost a point less than SLA's and still maintain their relative share (17, p. 85).

In all these research efforts cited above, the substitute relationship was found to be statistically significant at the .05 level. Additionally the substitution effect between CB and SLA time deposits was shown to be the most robust such relationship among an extensive array of assets studied but not discussed here.

Despite some technical differences in these various time series studies, the following general conclusions can be distilled:

(1) Regardless of the specifications of returns on various assets, savings and loan shares are the closest substitutes for commercial bank time and savings deposits.

(2) The substitution relationship among financial assets is unstable over time.

### **Cross-sectional Studies**

Several cross-sectional analyses of the impact of interest rate changes on savings deposits have generated puzzling results. In early studies by Feige, Lee, and Stevens, SLA deposits did not react significantly to small changes in CB time deposit interest rates (8, 16, 19). On the other hand, each of these three researchers found bank savings deposits quite responsive to changes in SLA yield rates. This asymmetry of results is as yet unexplained, but could be interpreted as evidence that SLA's rather than banks have at least, during some post-World War II time periods, enjoyed a competitive advantage in the market for savings deposits or that SLA customers are less sophisticated or interest sensitive than CB depositors.

More recent cross-sectional research has verified the results of time series analysis. Both Hartley and Kardouche found SLA and CB savings deposits to be substitutes after removing some regional factors that had been ignored in the earlier studies (10, 14). However, Kardouche also discovered a weak complementary relationship in urban areas when he related CB deposit changes to shifts in SLA rates and a stronger complementarity regarding SLA deposit reaction to CB time deposit yields. Taken together, these results suggest that both regional factors and the source of change can be critical when analyzing these associations. Boyd (4) found that Commercial Bank time deposits and S&L passbook accounts were substitutes, but that CB time deposits and S&L special accounts appeared to exhibit complementarity.

On balance, all these twists make definitive conclusions difficult, but in a broad sense the following statement regarding the cross-sectional evidence seems justified — SLA shares appear to be moderate substitutes for CB time deposits.

### Summary of Earlier Findings

Finally, when both approaches are combined and analyzed, the following general conclusions result:

1) Over a period extending from the early 1950's to the mid-1960's a substitution relationship between CB and SLA savings deposit existed.

2) Changes in the level of interest rates, but not interest rate spreads, caused a substitution response by CB savings depositors during the 1950's. SLA shares were independent of the level of return on CB time deposits as well as yield spreads over the same decade. Thus, the substitution relationship existing during that period was extremely weak.

3) In the 1960's interest rate differentials induced a substantial substitution effect. However, the strength of the reactions depended upon the geographic location of the institutions involved (10, pp. 16-17).

### THE IMPACT OF RECENT DEVELOPMENTS

To achieve the objective of our analysis, the authors have chosen to reexamine (in the light of subsequent events) the conclusions reached in a typical study from the extant literature.

In a previously cited 1966 study, Vernon analyzed the data found in Table 2 for the years 1947 through 1964, and concluded that the decline in the spread between yields earned by savers at SLA's and commercial banks was the principal factor accounting for the change in the trend in the bank share of savings deposits at CB's and SLA's. From 1947 to 1955, when the bank share exhibited a sharp downtrend, the spread was relatively constant. Then, from 1956-1961, the spread in yield narrowed and the rate of decline in the bank share slackened markedly. From 1962 through 1964, when the spread diminished to less than one point, the decline in the bank share halted.

Vernon undertook a regression of the change in the commercial bank share (S) on the yield spread (P) using annual observations for 1947 through 1964. The resulting equation:

$$(1) S = .024575 - 3.14253 P,$$

(4.13)      (-7.04)



had a coefficient of determination of .7422 indicating that yield spread variations explained roughly three-fourths of the change in bank share. Both the coefficients and the equation were significant at the one percent level (t values are under each term) and the Durbin-Watson coefficient of 1.66 ( $d_u = 1.39$ ) indicated that autocorrelation was not out of line with reasonable standards for economic time series analysis (20).

The results of Vernon's study supported the hypothesis that banks enjoy a competitive advantage over SLA's in the struggle for the public's savings dollar. Note that if there is to be no change in banks' share, that is if  $S = 0$ , then  $P$  would have to equal .008. This is the same as saying that banks could pay .8 percent less than SLA's and their share would not change. For the period covered by Vernon's study, banks appeared to possess attributes that SLA's lacked, inducing households to take a smaller yield on their bank savings deposits (20, p. 192).

On extending Vernon's data to cover the entire time period 1947 to 1977, the authors found that the explanatory power of yield differentials deteriorated significantly. The equation for the total period became:

$$(2) S = .00298 - 1.3248P$$

$$(1.65) \quad (-4.63)$$

The coefficient of determination dropped to .46 revealing a loosening of the relationship between the two variables. In this extended analysis the coefficients and the regression were still significant at the one percent level (t values are under each coefficient) while the Durbin-Watson fell to 1.54 ( $d_u = 1.50$ ).

In order to verify the shift in the relationship between intersectoral yield spreads and flows, a Chow test was carried out to test the stability of the coefficient of  $P$  over the period 1947-1964 and 1965-1977. The resulting F statistic of 7.27 led to the rejection at the one percent significance level of the hypothesis that a stable relationship existed between the variables over the entire period 1942-77. The equation for the period 1965-1977 was:

$$S = .006 + .103P, R^2 = .00$$

$$(1.32) \quad (.18)$$

Under this updated regression, commercial banks could maintain their share of the market by paying .2 percent less than SLA's. The drop in the *status-quo* yield differential from .8 percent to .2 percent would, *ceteris paribus*, indicate a definite diminution of banks' competitive advantage vis-a-vis SLA's in the period from 1965 to 1977. Or, looking at these developments another way, rate differentials became less and less important in determining where households deposit savings over this period. The reduction in the association between yield spreads and market shares is indicative of changing environmental factors impacting on the relationship. Examples of such changes would include the introduction and wide acceptance of certificates of deposit, the retail banking movement, and the proliferation of branching by both CB's and SLA's which unquestionably has changed the relative convenience factor in the last 15 years. Few economic relationships could be expected to remain stable given the various substantial institutional changes that have been so crucial in this market. Additionally, it is possible, even likely, that as the

Table 2

Spread between Returns to Savers by SLA's and Commercial Banks, and  
Change in Percent of Savings of Households in Banks and SLA's,  
1946 through 1977

	Savings of Households in Banks and SLA's (billions)	Percent in Banks	Change in Percent in Banks	Spread Between Returns to Savers in SLA's and Banks	Returns to Savers in SLA's	Returns to Savers to Banks
1947	\$ 41.7	76.50	-1.62	.0145	.0230	.0087
1948	43.2	74.54	-1.96	.0139	.0229	.0090
1949	44.8	72.10	-2.44	.0143	.0234	.0091
1950	46.3	69.76	-2.34	.0158	.0252	.0094
1951	49.8	67.67	-2.09	.0155	.0258	.0103
1952	55.6	65.47	-2.20	.0154	.0269	.0115
1953	61.7	63.05	-2.42	.0157	.0281	.0124
1954	68.7	60.26	-2.79	.0155	.0287	.0132
1955	75.2	57.31	-2.95	.0156	.0294	.0138
1956	82.1	54.98	-2.45	.0145	.0305	.0158
1957	92.4	54.65	- .33	.0118	.0326	.0208
1958	103.8	53.76	- .89	.0117	.0338	.0221
1959	114.0	52.11	-1.65	.0117	.0353	.0236
1960	124.5	50.04	-2.07	.0130	.0386	.0256
1961	139.3	49.10	- .94	.0119	.0390	.0271
1962	158.9	49.53	+ .43	.0090	.0408	.0318
1963	177.9	48.68	- .85	.0086	.0417	.0331
1964	196.6	48.22	- .46	.0077	.0419	.0342
1965	225.9	51.32	+3.10	.0072	.0441	.0369
1966	241.8	52.90	+1.58	.0036	.0440	.0404
1967	270.2	54.04	+1.14	.0032	.0456	.0424
1968	294.9	55.41	+1.37	.0019	.0467	.0448
1969	297.0	54.37	-1.04	.0007	.0480	.0487
1970	335.3	56.36	1.99	.0011	.0506	.0495
1971	392.8	55.71	- .65	.0055	.0535	.0478
1972	454.6	54.61	-1.10	.0030	.0496	.0466
1973	516.6	55.70	+1.09	-.0058	.0512	.0570
1974	565.1	57.50	+1.80	-.0115	.0578	.0693
1975	628.3	55.80	-1.70	.0032	.0622	.0590
1976	716.5	55.40	- .40	-.0101	.0631	.0732
1977	773.1	55.43	+ .05	-.0117	.0641	.0758

Sources: Federal Reserve Boards, Flow of Funds and Unpublished Reports;  
Federal Home Loan Bank Board, Journal and Unpublished Reports.

spread between the competing yields narrowed (becoming nonexistent or nearly so in some years) it may have dropped below a perceptual threshold and ceased to be a decision variable in the minds of many household savers.

Upon completion of the straightforward extension of Vernon's study just discussed, further analysis of the data for 1960 through 1977 pointed to an even greater deterioration in the relationship depicted in equation (2). A regression based on only the 17 years (1960-1977) confirmed our suspicions.<sup>1</sup> During this period the aggregate yield spread between banks and thrifts no longer provides an explanation for the shift in savings between the two financial intermediaries. This implies that using the aggregate data, a simple explanation of the change in banks' share of household savings deposits based upon the yield spread between commercial banks and savings and loan associations no longer works.

<sup>1</sup>The equation from 1960-1977 is  $S = .00306 - .54198P$  with  $R^2 = .08$ .  
(.88) (-1.19)



This important phenomenon has been largely ignored in the literature of the recent past. Given the many theoretical and institutional developments which touch on savings flows, there is a clear need to attempt to respecify the relationship. For, in addition to the introduction and proliferation of nonpassbook types of savings accounts<sup>2</sup> a review of the literature suggests other independent variables which might have played a role. Among the more prominent of these would be variables such as treasury bill rates versus a number depository yield spreads, credit union share yields, capital market yields, the role of government sponsored agency instruments and their yield, and the relative convenience (location) factors. Our preliminary efforts to incorporate the impact of a number of these variables proved unsuccessful. With SLA's lending upwards of 80 percent of their deposits in the mortgage market and bank's lending less than 20 percent for similar purposes, the impact on the real estate sector due to shifts in deposits from one type of institution to the other would be sufficient to justify a continuing effort to respecify the relationship.

### THE GROWTH OF NONPASSBOOK SAVINGS

In an attempt to focus more clearly on the declining influence of yield spreads on the household savings market, the authors analyzed some data that has become available only recently. These data are the result of regular surveys by the Federal Reserve and Federal Home Loan Bank Board which began in the early 1970's and some preliminary unpublished studies of CB and SLA account structure changes carried out by the same agencies in the late 1960's. These reports provide semi-annual observations beginning with the first quarter of 1967 and extending through the third quarter of 1977 which allows disaggregation of household savings deposits at CB's and SLA's into two major categories — passbook accounts and those deposits earning more than the passbook rate. The latter category is subsequently referred to as nonpassbook accounts. While this breakdown still involves excessive aggregation due to data limitations it provides some important insights into the significance of nonpassbook savings deposits for both institutions. All the new data are presented in Table 3.

Although CB's have experienced a steady increase in their share of household passbooks savings (PPB), no significant relationship was found between the change in PBB ( $\Delta$ PPB) and the relevant yield differential (PBSPREAD). Thus, the data indicate that passbook yield differentials, at least over the past decade, have not been statistically significant in the choice of passbook savings deposits by households. *A priori* one could expect this data to correspond rather closely with the annual observations which were included in Table 2 and which extended back into the period when simple passbook accounts were the dominant type of account offered to households by both CB's and SLA's. After our attempt to adjust the data to account for the impact of the proliferation of

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<sup>2</sup>At the end of 1977, passbook saving represented only 34 percent of total deposits at the major S&L's, versus close to 100 percent as recently as 1968.

Table 3

Spread between Returns to Savers by SLA's and CB's, and Changes in Percentage of Household Savings in CB's and SLA's -- The Influence of the Growth of Non-Pass Book Accounts

Quarter /Year	(1)	(2)	(3)	(4)	(5)	(6)
	Percentage of Passbook Savings in CB's PPB	Change in PPB $\Delta$ PPB	Passbook Yield Spread, SLA Passbook Rate - CB Passbook Rate PBSPREAD	Percentage of Non-Pass Book Savings in CB's PNPB	Change in PNPB $\Delta$ PNPB	Non-Pass Book Yield Spread SLA Rate-CB Rate NPBSPREA
I/67	47.91%	1.59%	1.03%	70.93%	.17%	.46%
III/67	48.14	.23	.74	69.31	-1.62	.22
I/68	49.00	.86	.75	67.16	-2.15	.12
III/68	49.31	.31	.76	65.69	-1.47	.17
I/69	49.49	.08	.78	64.50	-1.91	.19
III/69	50.54	1.15	.73	61.55	-2.95	.20
I/70	51.77	1.23	.76	58.53	-3.02	.21
III/70	53.39	1.62	.52	55.69	-2.84	.46
I/71	55.09	1.70	.52	55.57	-.12	.53
III/71	54.28	-.81	.63	53.47	-2.10	.54
I/72	54.68	.40	.58	52.05	-1.42	.61
III/72	54.61	-.07	.90	50.07	-1.98	.60
I/73	54.20	-.41	.74	49.58	-.49	.59
III/73	55.82	1.62	.48	47.99	-1.59	.27
I/74	55.43	-.62	.45	47.40	-.59	.47
III/74	56.33	.90	.43	46.84	-.50	.65
I/75	55.41	-.92	.41	45.71	-1.13	.75
III/75	56.79	1.38	.34	45.92	-.21	.78
I/76	57.05	.26	.33	44.58	-1.34	.93
III/76	58.36	1.31	.33	43.68	-.90	.80
I/77	58.79	.43	.34	43.94	.26	.87
III/77	58.47	-.32	.34	45.27	1.13	.76

Sources: Federal Reserve Board, Flow of Funds; and Federal Home Loan Bank Board, Journal and Unpublished Reports.

special types of deposits, the yield spread still no longer explains the flow of household passbook savings as it once was capable of doing.

In addition, despite the fact that nonpassbook savings might be thought more interest sensitive than passbook accounts, no meaningful relationship was found between the yield differential (NPBSPREAD) and the change in CB's share of nonpassbook deposits ( $\Delta$ PNPB). Therefore, interest rate spreads at the level of aggregation for which data are currently available cannot account for the steady erosion of CB's share of these savings (PNPB) from over 70 percent in 1967, to as low as 44 percent in 1977.

These results lead to the conclusion that since 1967 if not earlier, interest differentials (within the range studied) have had no statistically significant impact on the flow of household savings between the commercial banking and savings and loan association sectors. There is a clear need to reopen the investigation of factors influencing intersectoral savings flows, because the traditional explanation, yield spreads, no longer

provides an adequate answer. The "conventional wisdom" which assumes that Regulation Q differentials can assure a reliable flow of household savings into thrift institutions (vis-a-vis commercial banks) and, thus, into housing is, at best, dubious.

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