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ELEMENTS OF BANKING PERFORMANCE

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I. Introduction

A discussion of the relative performance of different institutional organizations must concern itself with determining the relevant criteria under which performance can be judged. For it is clear that if you change the criteria of judgement that the relative merits of one system or another will also change. A bank performance criteria has been particularly difficult to determine since nobody has yet been able to define bank output. Consequently, most measures of bank performance, so far derived, have been indirect ones, primarily whether one system is more or less competitive than another. The logic of this follows from the properties of competitive behavior, i.e. since it has

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*An earlier draft of this paper was presented at the Midwest Economic Association Meetings, April 24, 1970.

already been determined that competitive behavior implies a Pareto optimum state, the determination that one system of organization is more competitive than another, implies that it is Pareto superior.

One study, applying the industrial concentration categories of Professor Bain, has ranked various branch and unit banking markets in terms of their degree of competition.[1/] However, the problem of applying this approach to banking is that it fails to take into account the very special and important function which banks, as a financial institution, perform. Furthermore, although a comparison of the competitive properties of two types of industrial organization could lead to meaningful results if one was quite monopolistic and the other quite competitive, when both systems are quite monopolistic, as is the case in banking where only a few banks control a large percentage of the market, the comparison is not very useful. Thus we must return again to determining a meaningful and realistic criteria for judging bank performance. Towards this end, let us investigate the role banks play in the economy.

The role of a financial market is to provide an intermediary between suppliers of funds, savers, and demanders of

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[1/] See Shull and Horvitz, "Branch Banking and the Structure of Competition," The National Banking Review, 1964, section D.

funds, in general investors.[1] If the financial institution is performing optimally, then there should be a perfect match between suppliers and demanders of funds. However, a suboptimal performance will lend to a mismatching of funds, where some of the resources available for investment purposes will not be utilized. The impact of this is a reduction in the rate of economic development. This capital immobility problem has been largely ignored in the literature.[2] In terms of banking performance, if it can be shown that one type of banking structure provides a better intermediate for this flow of funds, i.e., a better unification of the market, then we would judge that structure, performance superior. The most obvious way to measure this characteristic is to determine the percent of total deposits or assets utilized as loans by various types of banking systems. In addition, we will compare interest rates charged on loans, charges on demand deposits and payments on time deposits as further evidence of relative performance.

For my discussion, I will concentrate on explaining the difference between rural and urban bank performance and between holding company affiliate banks and other unit banks.

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[1] There are obviously short-term demands for funds which are not for investment purposes. The above, although a simplification of the issue, is useful in defining the function of financial markets.

[2] A notable exception to this are the writings of Lance Davis. In particular see: Lance Davis, "Capital Immobilities and Finance Capitalism," EEH, 1963.

Although Minnesota is a unit banking state, multiple bank holding companies are allowed. The holding company banks account for 114 of the 715 banks in Minnesota and have almost 2/3 of the deposits. Most of the data utilized in this paper is derived from Minnesota call and income and dividend reports by county. The results although specific to Minnesota, are consistent with general analysis.

Before proceeding to a presentation of the relevant Minnesota banking data, let us review, briefly, the arguments and evidence used in the banking debate up to the present time.

II. The Tradition Banking Argument

The traditional argument about banking performance, whether a particular structure is more or less competitive than another structure, has revolved around determining the number of banks in any area, the freedom of entry of any system to new banks, and the cost efficiency with which any system operates. Let me take each of these issues in turn.

A. The Number of Banks in an Area

If one uses the total number of banks in any area to measure the degree of competition between branch and unit banking systems then except for the very large cities over 500,000 in population, there are about as many branch banks as unit banks. In cities over 500,000 there are more unit

than branch banks. This fact is brought out clearly in Tables I and II below.[1/]

However, this argument is a little deceptive because the number of banks can only be evaluated in terms of a particular market area and it is not clear that the relevant market is the same for branch and unit banks. The situation in banking is somewhat analogous to the example that follows. Suppose we consider a state where there is only one grocery store in every town and we compare this state with one where there are only two grocery firms with a chain store in every town. In which case will there be more competition. In the one case, each grocery has a virtual monopoly of food service for its town, while the two chain stores might very well compete statewide. This example is not as far-fetched as it sounds, for in 28 out of the 87 counties in Minnesota there are 5 or less banks.[2/] If branch banks tend to unify the market, then the relevant market area will be larger than that for unit banks.

B. Bank Entry

The issue of bank entry also is one that can be deceptive. If you measure bank entry by the number of new banks, then more new banks are created in unit banking states than

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[1/] See Bernard Shull and Paul Horvitz, "Branch Banking and the Structure of Competition," The National Banking Review, March, 1964, Tables 20 and 21, p. 329.

[2/] This is as of December 1968.

TABLE I

Average Number of Different Banks
Per Standard Metropolitan Area, June 1962,
by Type of Branching Law*

Population Size of Metropolitan Area	States with Statewide Branching	States with Limited Branching	Unit Banking States	United States
10,000 - 99,999	4.75	6.40	6.23	6.00
100,000 - 499,999	7.38	10.35	14.97	10.99
500,000 - 999,999	12.38	13.07	38.83	18.21
1,000,000 and over	27.60	47.17	105.67	58.17
All Metropolitan Areas	10.22	15.07	24.23	16.74

*Source: Shull and Horvitz, "Branch Banking and the Structure of Competition," The National Banking Review, 1964, p. 329.

TABLE II

Number of Different Banks and Number of Standard Metropolitan Areas, June 1962, by Type of Branching Law*

Population Size of Metropolitan Area	States with Statewide Branching		States with Limited Branching		Unit Banking States		United States	
	No. of Banks	No. of Areas	No. of Banks	No. of Areas	No. of Banks	No. of Areas	No. of Banks	No. of Areas
50,000 - 99,999	19	4	32	5	81	13	132	22
100,000 - 499,999	214	29	683	66	554	37	1451	132
500,000 - 999,999	99	8	196	15	233	6	528	29
1,000,000 and over	138	5	566	12	634	6	1338	23
Total	470	46	1477	98	1502	62	3449	206

*Source: Ibid., p. 329.

in branch banking states.[1] However, if you measure entry by the number of new offices, then the number of new offices in branching states greatly exceeds the number in unit banking states. Table III shows that between 1953 and 1962 for the United States as a whole, there was a 7.6% increase in the number of bank offices in unit banking states compared with a 58.5% increase in statewide branching states.[2]

The reason for this significant difference in bank office creations is rather straight forward. Given the risk of failure to any new business, the Federal Reserve Board and other chartering organizations act conservatively in granting new bank charters. However, given that a new branch is a small part of any branching system, the probability that an unsuccessful new branch will cause the entire system to fail is very small.

C. Cost Efficiency Argument

The results so far comparing the cost of operation of branch systems to unit systems are inconclusive. In general, the problem is that data on branching systems by individual office is very difficult to obtain. The result is that the comparisons tend to be in terms of a unit bank compared to

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[1] In fact there has been a 25% decline in bank numbers in statewide branching states between 1953 and 1962 compared to a 7.6% increase in unit banking states. See Table III.

[2] It should be pointed out that the loss in bank numbers in branching states is accounted for by mergers and not by bank failures.

TABLE III

Changes in the Banking Structure, 1953-1962,
by Type of Branching Law*
(Percent)

State Classification	Change in Number of Banks	Change in Number of Branches	Change in Number of Banking Offices	Ratio of New Banks to Number of Banks 1953	Ratio of Mergers to Number of Banks 1962	Ratio of New Banks in Mergers
Statewide Branching States	-25.3	+109.5	+58.5	12.1	36.6	33.1
Limited Branching States	-12.4	+139.7	+34.9	4.5	16.5	27.6
Unit Banking States	+ 7.6	--	+ 7.6	10.3	1.8	563.8
All States	- 4.6	+126.5	+30.3	7.9	11.8	66.7

*Source: Ibid., p. 315.

a branch system. To show that the cost of a branch system are higher than a unit bank of the same size and product mix, as one recently published article has shown, provides little more insight than that it is more expensive to run two banks than one.[1/]

III. Evidence in the 1960's--Minnesota Banking Data

In this section, we will turn to the available evidence on Minnesota banking performance. Two types of evidence will be investigated: (1) loan to deposit ratios and the loan portfolio distribution and (2) interest rate charges of various categories of banks.

Table IV below presents the loan to deposit ratios along with the percentage breakdowns of five types of loans: loans for purchases of land and real estate, loans to other financial institutions, loans to farmers, loans to business and corporations, and consumer loans to individuals. In addition, to compare the rural-urban breakdown, I determined the average ratio for the highest and lowest 10% of the counties ranked by total number of deposits.

These results can be summarized as follows. The average loan to deposit ratio for all Minnesota banks from 1960 to 1964 is 47% and increases to 51% in 1968. If all banks

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[1/] See John Anthony Powers, "Branch Versus Unit Banking: Bank Output and Cost Economics," Southern Economic Review, 1969.

TABLE IV: Loan to Deposits and Loan Categories in Percent, All Minnesota Banks and Highest and Lowest 10%, December 1960, 1964 and 1968. 1/ 2/

		Loan Categories as Percent of Total					
		Loans to Deposits	Real Estate	Financial Business	Farm	Industrial	Personal Consumer
1960	All Banks	47.08	35.85	1.08	31.81	11.91	18.38
	Lowest 10%	43.09	33.21	2.68	32.55	10.74	19.85
	Highest 10%	51.74	35.67	4.26	10.46	23.64	23.93
1964	All Banks	47.49	34.73	1.62	30.05	13.37	19.27
	Lowest 10%	44.32	34.16	4.15	31.58	10.03	19.61
	Highest 10%	52.53	35.49	6.08	8.32	24.43	23.93
1968	All Banks	50.97	34.30	1.45	27.32	15.29	20.74
	Lowest 10%	47.63	29.90	2.08	33.53	12.14	20.49
	Highest 10%	57.83	35.31	5.19	7.58	25.55	24.74

*Source: December Call Reports

1/ The Highest and Lowest 10% refer to counties ranked by total deposits.

2/ The averages are by counties since the totals by banks are not available.

acted identically, ceteris paribus, then we should observe no significant difference between the loan-deposit ratios of the highest and the lowest 10% of the counties. However, the lowest 10% are consistently below the highest 10%. The difference between them averages somewhat over 9%, from 8.75% in 1960 to 10.20% in 1968. The urban banks in the period studied consistently loan out a higher percentage of their assets than the rural banks.

To provide additional insight into this, consider the loan portfolios of the rural and urban banks categories for the same period. Real estate loans make up approximately one-third of total loans for both the highest and lowest 10% of the counties. Loans to other financial institutions make up a small percentage of total loans, somewhat below two percent on the average. However, the percent of the urban banks is consistently above the rural banks.

Once we get to farm loans, the difference in portfolios becomes clear. The rural counties consistently invest 20% more of their loans portfolio in the farm category. The average percent of farm loans for all Minnesota counties falls from under 32% to 27-1/2% over the decade. This fall is entirely accounted for by a drop in the participation of urban banks in farm loans. This fact reflects two things. Over the period of the 1960's banks have been having stiff competition from other agricultural credit institutions and have lost a percentage of the agricultural credit market in

the Ninth Federal Reserve District. Further, the city correspondent banks have reduced the level of their participation in agricultural loans. If you look at the percentage of farm loans by the Twin City banks over the 1960's, the major center of correspondent banks for the state and region, then it is consistently less than one percent and falls over the period. Although the Twin City Banks were reducing their participation in agricultural loans over the period from 1960 to 1968, they had a net inflow of correspondent balances equal to 74.5 million dollars.[1/]

The remaining two categories of loans provide little unexpected information. Whereas the rural banks were heavily committed to farm loans, the urban banks have a 13% higher committment to industrial loans and a four percent higher participation in the individual consumer loan.

We investigated the loan portfolios of rural and urban banks to help provide an insight into the difference between their loan to deposit ratios. How then does the difference in their loan portfolios help us explain the difference in

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[1/] The relevant figures are:

	Deposits of Twin City Banks		
	From Other Banks	With Other Banks	Net Inflow
1960	353,663	90,358	263,305
1968	531,440	196,652	334,788
Change over period	177,777	106,294	74,483

Source: Minnesota Call Reports, December 1960, 1969.

their total loan behavior? The rural banks have a very high percentage of their loans tied to agriculture. Their real estate loans are mostly agricultural real estate; the individuals they are lending to are farmers or related to farming, plus their large committment in direct agricultural loans. If something should happen to the particular type of local agriculture that a rural bank is involved with, then a high rate of loan defaults could be expected that year. Thus because rural banks tend to have a less diversified portfolio than their urban counterparts, they tend to face a greater risk as well. Given this greater risk faced by a rural bank, it is rational to have a smaller percentage of total assets in loans.

Now that we have presented the differences between rural and urban bank loan behavior, let us now compare the loan behavior of different types of existing banking systems to see what impact we might expect from a change in the existing structure. The two structures to be compared are multiple bank systems and unit banks. Although there are no branch banks of significance in Minnesota,[1/] the most notable type of multiple bank system, there are two ways to infer what the effects of a branching system would be on Minnesota: (1) compare the loan performance of the holding company

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[1/] There are, in fact, two branch banks. They existed before the law was passed in the 1920's prohibiting branching, and the law was not applied retroactively.

affiliate banks with the remaining units banks and (2) compare the performance of unit banks and branch offices in one and two bank towns in other states.

In Table V, using available data, I computed the average loan to deposit ratios of holding company affiliates and nonholding company unit banks. The loan to deposit ratios of holding company affiliates was 4.5% higher in 1968 than other unit banks. Although this result already indicates the similarity noted between the rural and urban banks, let us first consider the loan behavior of branch and unit banks in other states before making any inferences.

To discount the effects of demand conditions on the loan ratios, I will refer to studies which compare branch offices and unit bank loan performance in one- and two-bank towns. Since there is no reason to believe that there should be any systematic locational demand bias in favor of branch banks under these conditions, any differences which appear must represent different supply performance.

There are two relevant studies which can be sighted. In a study by Shull and Horvitz, average loan to asset ratios are derived from a sample of banks in 106 isolated one- and two-bank towns[1/] between 1959 and 1962. Their results presented in Table VI can be summarized as follows: (1) the

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[1/] See Shull and Horvitz, "The Impact of Branch Banking on Bank Performance," The National Banking Review, March 1964, Table 11 and Appendix B.

TABLE V

The Loan to Deposit Ratio of Holding Company Affiliate Banks and Non-Holding Company Affiliates, 1968, in Minnesota*

	All Commercial	Holding Affiliates	All Other Banks
Total Loans to Total Deposits by Bank	48.10	51.82	47.39
Total Loans to Total Deposits Aggregate	55.93	58.41	52.23
Total Loans (in mil. of $)	4,774	2,984	1,790
Total Deposits	8,536	5,109	3,427

*Source: Ninth District Banking Data, 1969.

TABLE VI - Performance Characteristics Classified by Structural Characteristics for Unit Banks in Isolated One- and Two-Bank Towns (Means of Ratios, 1959-1962)*

Performance Characteristic	All Banks	Number of Banks in Town		Branch Banking		Branch Office		Other Savings Institutions		Distance from Town with 25,000 Population	
		One	Two	Not Permitted	Permitted	Not Present in Town	Present	Not Present	Present	25 Miles or Less	Over 25 Miles
Interest on Time Deposits to Time Deposits	.0237	.0223	.0248	.0211	.0261	.0226	.0279	.0250	.0213	.0232	.0241
Time to Total Deposits	.4475	.0413	.4785	.3550	.5332	.4320	.5099	.4905	.3704	.4378	.4564
Interest on Time Deposits to Total Deposits	.0111	.0098	.0122	.0080	.0139	.0103	.0144	.0126	.0083	.0107	.0114
Interest and Charges on Loans	.0601	.0595	.0606	.0585	.0616	.0596	.0623	.0605	.0594	.0598	.0604
Net Current Earnings to Assets	.0118	.0121	.0114	.0114	.0121	.0118	.0116	.0118	.0116	.0116	.0119
Number of Banks	106	49	57	51	55	85	21	68	38	51	55

Note: Towns are isolated in the sense that there are no commercial banking offices within a radius of five miles. A branch office is defined as the office of a bank having at least 4 offices whose main office is located in a town or city over 5 miles away. Other savings institutions include savings and loan associations and mutual savings banks.

*Source: Horvitz and Shull, "The Impact of Branch Banking on Bank Performance," The National Banking Review, December 1964, Table 11.

loan to asset ratios in the subset of towns where branching was permitted was 9% higher than where branching was not permitted; and (2) the loan to asset ratios of banks in towns where branch offices were located was 3.7% higher than where branch offices were not located.

In a study conducted on one- and two-bank California towns similar findings were reported. From Table VII, it can be seen that on average the branch offices tended to have higher loan to deposit ratios than the unit banks both when there was only one bank in town and when there were two. The highest ratios were reported where both a branch and unit bank were located, 89% and 68% respectively indicating that competition does tend to increase performance.

Since interest rates can be thought of as the price of loans and the return on time deposits, we would expect there to be some relationship between loan behavior and interest rates charged. The more competitive the environment, the more loans a bank wants to make, the less relatively it must change on loans and the more it will pay on time deposits given the legal restrictions placed on them. This is consistent with what is observed in Table VIII. The average rate charge on loans by counties in Minnesota moves from 6.27% in 1960 to 6.74% in 1968, consistent with the rise in interest rates nationally. However, over the entire period urban banks consistently charge approximately .4% less than rural banks. In terms of time deposit payments, in 1960 the

TABLE VII

Comparison of Loan-Deposit Ratios of Unit Banks and Branch Offices in One- and Two-Bank Californis Towns[1/]

Banking Structure in Towns	Towns analyzed (number)	Ratio of loans to deposits (percent)		High ratio offices (.80) (number)	Percent of total loans at high-ratio offices (percent)
		Aggregate	Average		
One-bank (unit)	8	6/65 57.5 12/65 46.7	59.0 49.4	0	0
One-bank (branch)	143	63.6	59.6[2/]	31	45.4
Two-bank (mixed)					
Unit	12	59.9	68.2	4	17.5
Branch	10	82.7	89.6	4	59.3
Two-bank (both branches)	114	58.6	61.4[2/]	47	35.0

[1/] Data are based on various periods, including December 1964, June 1965 and April 1966. Two dates are shown for the banks in the 8 one-bank (unit) communities because of the wide difference between June and December. Other groups show little change between these dates.

[2/] Averages include several new branch offices with ratios less than .20.

TABLE VIII

Bank Interest Rates for the Average and Highest and Lowest 10% of Counties in Minnesota, 1960, 1964, and 1968*

		Loan Interest Rate	Time Deposit Rate	Demand Deposit Charges
1960	Average	6.27	2.64	.57
	Lowest 10%	6.34	2.55	.54
	Highest 10%	5.99	2.48	.57
1964	Average	6.43	3.24	.63
	Lowest 10%	6.76	3.17	.60
	Highest 10%	5.89	3.21	.64
1968	Average	6.74	4.18	.69
	Lowest 10%	6.78	3.98	.62
	Highest 10%	6.40	4.25	.70

*Source: Call and Income and Dividend Reports for Minnesota Counties, December 1960, 1964, and 1968.

rural counties payed six hundreths of a percent more than the urban counties, but by 1968 the urban counties were paying 27 hundreths of a percent more than the rural counties. Thus the urban banks appear to be more responsive to the rising interest rates in the national markets than the rural banks as far as demand deposit charges, although urban banks consistently charge more than rural banks, the difference is not very significant. Thus by 1968, the urban banks were paying more on time deposits and charging less on loans while having virtually the same demand deposit charge.

In Table IX, we compare the holding company affiliate banks with other commercial banks in terms of their interest rates and charges in 1968. We find the same relative differential as we observed between the rural and urban counties. The holding company banks charged .4% less on loans, .4% less on demand deposit charges and payed .33% more on time deposits. This evidence is in complete support of what we found to be the case in comparing the loan to deposit ratios.

Now that we have concluded that there is a rural loan problem, a problem involving higher relative risks and a lower degree of portfolio diversification, how do the system banks overcome this problem to obtain higher loan-deposit ratios? The answer is that a branch office or a holding company affiliate does not have to diversify its portfolio; it is only important that the system have a diverse portfolio. In the case of a statewide branch bank, that would be

TABLE IX

Interest Rates for All Commercial, Holding Company Affiliates and Nonholding Company Banks (Other) in Minnesota in 1968 (percent)*

	Total Commercial	Holding Affiliates	Other
Interest on loans	298.6	181.3	117.3
Charges on loans	5.1	3.9	1.2
Total on loans	303.7	185.2	118.5
Charges on DD	22.2	11.1	11.1
Interest on time	184.6	101.3	83.2
Total loans	4,774.0	2,984.0	1,790.0
Total DD	4,166.4	2,768.9	1,397.5
Total time	4,369.8	2,340.4	2,029.4
Interest Rate on loans	6.35	6.21	6.62
Charge Rate on DD	.53	.40	.79
Interest Rate on time	4.22	4.33	4.10

*Source: Ninth District Banking Data, 1969.

insured. They would participate in all the various activities of the state. For the case of the holding company affiliates the solution is not quite as simple, although there are various means available to insure the diversification of the loan portfolio of any bank in the system. One way would be to have member banks around the state exchange loans. However, as long as the system is willing to absorb the losses of an affiliate, the risk problem has been reduced.

The second reason is that there might be a competitive mechanism which is not usually taken into account. Bigness is not necessarily monopoly and sometimes, if the system operates correctly, there can be real advantages to branch financial institutions. There are two processes which take place which lead to good performance characteristics.

Within a branching or holding company system there is a constant monitoring of the individual managers and presidents to insure that they perform up to standards set at the home office. The success of any manager or president of the system depends on his relative performance to all the other managers of the system. This performance rating for branch managers is usually in terms of loan accomplishments. Thus in a branching system, for instance, there is terrific pressure for a manager to loan out all his assets, since he knows full well that anything he doesn't loan out will go to another branch office and improve someone else's performance relative to his. No such process exists in a unit

independent bank. If the owner of the bank does not perform well, and he is in one of those low density bank counties, there is no force to make him improve his performances.

A further competitive force is that branch and holding company systems tend to compete system wide with other holding companies and branch systems rather than just locally as unit banks do. Thus where there is only one unit bank in a given region which is so prevalent in rural Minnesota, the bank can act as if it has a virtual monopoly over banking services.

Thus we must conclude that there are many reasons to believe that the introduction of branch banking in Minnesota would lead to an expansion of the loan-deposit ratio of the entire system. The question of exactly how much additional loans would be made is a rather difficult question and involves computing secondary as well as primary effects of an expansion of loans. On the other hand, the difference between the loan-deposit ratio of branch banks and unit banks tended to be larger than the difference between the holding company affiliate and other unit banks in Minnesota. This would lead one to conclude that the expected expansion in loans would at least be equal to what holding company affiliates now loan. By assuming that the improvement would be equivalent to all banks loaning the same percentage of their deposits as the holding company affiliate banks, (for derivation procedure see Table X) and using the 6.19% differential,

TABLE X

The Amount of Additional Loans at Holding Company Rates, 1968 in Millions of Dollars

Using Averages by Bank	$161,000,000
Using Aggregate Totals	$211,000,000

Derivation Procedure

1. Take the difference between the loan-deposit ratio of holding company affiliates and all other banks from Table V:

   a. 51.82 - 47.39 = 4.43 By Banks

   b. 58.41 - 52.23 = 6.19 By Aggregates

2. Take the difference as a per cent of the loan-deposit ratio for all other banks:

   a. 4.43 47.39 = .093

   b. 6.19 52.23 = .118

3. Multiply by total loans of all other banks:

   a. $1,790 x .09 = $161

   b. $1,790 x .118 = $211

it is estimated that there would have been a 212 million dollar increase in loans over that which existed in 1968. And this difference does not take into account the additional cost of the interest rate differential.

Although this is a crude estimating procedure, it is fair to say that the magnitude of the change is not unreasonable given the evidence in this paper. The problem we face as economists is to determine whether the benefits of the existing structure are worth that amount of cost.