

The Costs of Implementing Regulatory Changes: The Truth in Savings Act

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Abstract

Although the cost of banking regulation has been a controversial issue for many years, little empirical evidence is available. This study provides new evidence on the effect of the amount of required changes on start-up compliance costs, using data from a survey of the costs of implementing the Truth in Savings Act. The finding, that start-up compliance costs were insensitive to the extent of changes required to implement the regulation, has important implications for regulatory policy. It suggests that a general requirement to alter an infrequent practice may impose nonnegligible costs on all banks, not only those banks that must make substantive changes in their practices. This finding argues against a policy of making frequent minor revisions in regulations. Instead, a policy of delaying revisions until some number have been accumulated and then making infrequent major revisions of regulations may reduce implementation costs by allowing banks to exploit economies of changing practices.

Key words: banking, regulatory costs, Truth in Savings Act

1. Introduction

Banking is one of the most heavily regulated industries in the United States. Bank regulation provides many benefits, but it also gives rise to compliance costs, which ultimately result in fewer choices and higher prices for purchasers of bank products. Concern about compliance costs is warranted, because available evidence indicates that the compliance costs for bank regulation are substantial. The ongoing operating costs of complying with federal bank regulations alone may have amounted to 6-14% of commercial banks' operating expenses, or \$7.5-17 billion, in 1991 (Federal Financial Institutions Examination Council, 1992). Beyond these ongoing costs are the start-up costs for implementing new regulations and altering programs to comply with changes in existing regulations, which can be as large as the ongoing costs of compliance (Boyle, 1982; Schroeder, 1985).

Considering the magnitude of compliance costs in banking, remarkably little is known about the technology of compliance. The federal bank regulatory agencies have not been

subject to the extensive statutory requirements for regulatory analyses that spurred production of quantitative data on the costs of environmental, health, and many other regulations. Only a small number of publicly and privately sponsored studies provide data on regulatory costs for financial services (see Elliehausen, 1998). A few of these studies have investigated the relationship between ongoing or start-up costs and the level of output (Murphy, 1980; Schroeder, 1985; Elliehausen and Kurtz, 1988; Thakor and Betz, 1993). The level of output is only one feature of a production operation, however. The volume, timing, flexibility, and quality of output are other features of a production operation that may influence producers' costs.¹ The costs of changing banks' policies and practices to conform with a new disclosure regulation, for example, may be affected by the number of accounts requiring changes in disclosures, the extent of required changes in disclosures, or the deadlines by which banks must make the required changes. Concentration on the rate of output alone may lead to an incomplete understanding of the relationship between costs and output.

This paper investigates determinants of start-up costs for the Truth in Savings Act (12 USC 4301 *et seq.*; 105 Stat. 2334).² One issue examined is the sensitivity of start-up costs for a new regulation to the number of required changes in banks' policies and practices. Empirical evidence on this feature of regulatory compliance is not available. A finding that costs are insensitive to the number of changes would favor a policy of infrequent major revisions in regulations over a policy of frequent minor revisions. In contrast, a finding that costs are highly sensitive to the number of changes would make consideration of the frequency and magnitude of revisions essentially irrelevant. Therefore, the results of the study have important implications for regulatory policy.

The remainder of this paper is organized into four sections. Section 2 describes the requirements for implementing the regulation and the survey methods. Section 3 discusses the model. Section 4 presents the results. Section 5 summarizes the conclusions and their implications for regulatory policy.

2. The cost of implementing the Truth in Savings Act

The new regulation that this paper analyzes is the Federal Reserve Board's Regulation DD, the regulation implementing the Truth in Savings Act.³ Truth in Savings, like many federal consumer protection laws for financial services, is primarily a disclosure law.⁴ It mandates an extensive number of specific disclosures for consumer deposit accounts at proscribed times. The law also has a few substantive requirements—most notably a requirement that

¹ Alchian (1959) discusses the possible effects on costs of the volume and timing of output. Stigler (1958) considered the effects on costs of providing for flexibility in the output level. Spady and Friedlaender (1978) consider effects on costs of variations in quality.

² This paper does not address the benefits of the act. For an evaluation of the Truth in Savings disclosure requirements, see Durkin (1999).

³ The Truth in Savings Act was part of a larger banking bill, the Federal Deposit Insurance Corporation Improvement Act, which contained a number of controversial and burdensome provisions. The Federal Deposit Insurance Corporation Improvement Act stimulated several studies of regulatory costs, including this one. For a discussion of these studies, see Elliehausen (1998).

⁴ See Durkin (1999) for a discussion for federal consumer protection regulation of financial services. Durkin notes that even regulations that are not primarily disclosure regulations also contain substantial information disclosure requirements.

interest be paid on the entire balance in an account. This requirement prohibits an interest calculation method called the *investable balance method*, which pays interest only on the portion of the balance above the reserve requirement that the bank is allowed to invest or lend.⁵ A summary of the specific requirements of the Truth in Savings Act is provided in the appendix.

2.1. Implementing the regulation

To comply with the new regulation, banks had to undertake certain actions. Bank managers had to learn the requirements of the regulation and revise disclosure documents to conform with the regulation's requirements. They also had to consider whether the compliance costs or actions of competitors made it desirable to continue offering the same set of account varieties at the same terms, review marketing programs for consistency with provisions governing the content of advertising, and develop procedures for monitoring compliance. Banks needed to train tellers and customer service representatives to understand the basic requirements of the law and give correct disclosures at specified times. Finally, systems and operations personnel had to reprogram computers or purchase software to calculate interest in accordance with Regulation DD and provide the appropriate disclosures.⁶

Some of the actions described here for Truth in Savings likely would be undertaken for any new disclosure requirements. Learning the requirements of the regulation, modifying disclosures and marketing programs, and training employees are examples of such actions. Thus, the estimates for determinants of costs from this study should provide useful information for assessing potential costs of other new regulatory requirements concerning disclosures.

2.2. The survey

The data for this investigation are from a Federal Reserve Board survey of compliance costs for bringing consumer deposit account practices into compliance with Regulation DD. Banks had to review their practices for compliance with the regulation and change account terms and practices to satisfy the regulation. These actions occurred solely because of the regulation and, therefore, represent incremental costs of regulation. The questionnaire stated explicitly that only costs incurred because of Truth in Savings should be included.

The target population for the survey was banks in operation in June 1993 (the date for mandatory compliance with the regulation) that offered consumer deposit accounts and therefore were subject to the regulation. The sample was a representative sample consisting of both nonrandom and random components.⁷ Banks were stratified by three asset-size

⁵ Congress considered uniform disclosure legislation for deposit accounts at various times since the 1970s, but the arguments establishing the need for a disclosure law had not been especially strong. Banks typically disclosed effective yields for deposit accounts, since effective yields were greater than simple interest rates. Congress finally enacted a law in 1991, probably because of the growth of the investable balance method, which was used by about 10% of banks at that time. See S. Rep. No. 102-167 at 80-83 (1991).

⁶ For further discussion of the compliance process for the Truth in Savings Act, see Chamness (1992, 1993).

⁷ The nonrandom component consists of (1) banks solicited by the American Bankers Association, the Consumer Bankers Association, and the Independent Bankers Association of America; (2) banks participating in the Federal Reserve System's Functional Cost Analysis program; (3) and banks that volunteered to

groups (small, less than \$100 million; medium, \$100 million to \$499 million; and large, \$500 million or more) and four census regions (Northeast, North Central, South and West). The four strata for large banks contain all banks in the particular region. For the remaining eight strata for small and medium-sized banks, the nonrandom banks were assigned to the appropriate stratum, and the remaining banks needed to achieve the target sample size were drawn randomly.

The questionnaire has two parts. Part I covered deposit account policies and practices that Truth in Savings regulates. It requests banks to report the policies and practices in place for several different types of consumer deposit accounts before the law became effective. By comparing prelaw practices with the requirements of Truth in Savings, measures of the extensiveness of changes in policies and practices can be constructed.

Part II requests banks to report one-time, start-up costs of changing policies and procedures to comply with Regulation DD. Cost data were collected for eight general categories.⁸ Specific compliance activities were identified for each category, and simple instructions were provided for calculating costs. Part II also asks for information on the number and dollar amount of consumer deposit accounts and about changes in interest rates, fees, and other deposit account practices that resulted from Truth in Savings.

Both parts of the questionnaire were mailed to respondents in early November 1992, shortly after publication of the final regulation in the Federal Register. Respondents were asked to return Part I (the report of prelaw practices) by the end of November. This time limit provided an early indication of response and permitted follow-up letters to encourage likely nonrespondents to participate. Respondents were instructed to return completed Part II questionnaires at the end of July 1993, when compliance with the Truth in Savings regulation became mandatory. At that time, banks that returned Part I but not Part II were mailed a reminder. In the end, 42% of eligible respondents returned both parts and provided sufficiently complete information for analysis.⁹ This response rate is quite high for a mail survey and substantially higher than those of almost every other survey of regulatory cost.

To promote valid and consistent estimates of compliance costs, the survey had several features that mitigate against respondents' cognitive problems in answering questions. Conducting the survey during the implementation period enabled respondents to develop

complete the survey. The random component is a random sample drawn, from the complement of the nonrandom component. Response rates for the various parts of the nonrandom component and the random component were similar. The mean difference in start-up costs for nonrandom and random components was very small and not statistically significantly different from 0.

⁸ The categories were (1) costs incurred before issuance of the final regulation for review of the proposed regulation and preparation of comments; (2) management and in-house legal costs for reviewing the final regulation, assessing existing products and account practices, revising products and account practices, and developing a compliance program; (3) fees for outside legal services and consultants; (4) costs of training employees; (5) costs for data processing and system changes, including purchase of hardware and software, installation and testing of software, costs of outside contractors, and assessments of third-party processors; (6) costs of designing new disclosures and destroying old forms; (7) cost of notifying existing account holders of their right to receive account disclosures; and (8) any other expenses.

⁹ Very few of the returned Part II questionnaires had problems with either the completeness or the plausibility of responses. Hardly any had problems that were severe enough to warrant removing them from the data set.

records rather than rely heavily on memory to estimate compliance costs. A listing of possible compliance activities by category and the provision of simple instructions for calculating costs facilitated respondents' understanding of the questions. In addition, a toll-free number was established to answer respondents' questions.¹⁰

Responses indicated that banks spent on average \$29,390 or \$0.41 per \$1,000 of consumer deposits to implement Truth in Savings (Elliehausen and Lowrey, 1997). This amount was 2.7% of annual operating expense in 1993 for deposit accounts at commercial banks.¹¹ Considering the activities that banks had to perform to comply with Truth in Savings, start-up costs of this magnitude seem reasonable.

3. The model

Duality theory shows that, under certain conditions, the production process can be represented equivalently by either a production function or a cost function. Direct estimation of the production function is more attractive when the level of output is endogenous, and direct estimation of the cost function is more attractive if the level of output is exogenous (Christensen and Greene, 1976).

This paper uses a cost function to study the process of implementing a new regulation because the level of compliance can be considered to be exogenous. Banks cannot choose not to comply or to comply only partially. They are examined regularly and penalized severely for all but inadvertent minor mistakes. The regulatory compliance process greatly limits banks' ability to choose a level of regulatory compliance.¹² Therefore, banks' optimization decision is to choose a set of factor inputs that minimize the cost of producing a given level of compliance.

The theoretical cost function has output and factor input prices as its arguments. Other variables affecting cost may be considered explicitly if they can be identified or implicitly through an error term if they cannot be identified. Therefore, the cost function can be written

$$C = C(Q,P,H,\epsilon)$$

where Q is a vector of variables measuring output, P is a vector of factor input prices, H is a vector of other variables affecting compliance cost, and ϵ is an error term.

The dependent variable for this analysis is the total start-up cost for each bank. The following subsections discuss the independent variables and functional form used to

¹⁰ For discussion of response problems in surveys of regulatory costs, see Elliehausen (1998).

¹¹ Operating expense for deposits was about \$15.31 per \$1000 in 1993. This figure is a weighted average of data on operating expenses for demand and time deposits at banks participating in the Federal Reserve System's Functional Cost Analysis program (Federal Reserve Banks, 1994). Weights are based on the deposit-size distribution of the population of banks in 1993.

¹² The assumption of an exogenous level of compliance may not be appropriate for regulated firms that are not subject to comprehensive compliance examinations. For example, finance companies and retailers are subject to Truth in Lending, but these types of firms generally are not examined for compliance with the regulation. Some of these firms might risk violations to reduce costs. Others might choose to over comply to avoid the possibility of investigation. In such cases, the level of compliance would not be exogenous.

estimate cost functions for start-up compliance costs for the Truth in Savings regulation. Table I presents descriptive statistics for the variables.

3.1. Output

Output is defined in terms of the cost-causing activities that banks must perform to bring their disclosures and other practices for consumer deposit accounts into compliance with the new law. These activities have several dimensions. First, Truth in Savings requires disclosures because a consumer deposit account exists or is opened. Thus, the level of output in compliance is related primarily to the number of consumer deposit accounts subject to the requirements of Truth in Savings. If there are economies of scale, the average cost per account of implementing a new regulation (or changing an existing one) would be higher for smaller banks than for larger ones, putting smaller banks at a disadvantage in competing with larger banks.

A second dimension is the amount of required change in deposit account practices. We measure the amount of change by comparing Truth in Savings' requirements with five preregulation deposit account practices for six types of deposit accounts and counting each time the bank must change a practice to comply with the regulation.¹³ The results for this variable will help answer how closely compliance costs are related to individual changes.¹⁴ If compliance costs are closely related to individual changes, imposing general regulations to address infrequently occurring practices will impose costs primarily on those banks that have the practices in question. Alternatively, if costs are not closely related to individual changes, regulation will be costly to all banks regardless of the number of changes they have to make.

The third dimension is the number of account varieties offered. Many banks offer different varieties of a type of account. For example, a bank may offer one NOW account that has transaction fees and another that has a fixed monthly service charge. Each variety has different terms and may require different disclosures under Truth in Savings. When a bank offers more product varieties, managers have to review more products; programmers have to write and test longer, more complex software; and employees have to be trained to

¹³ The practices are the (1) method of determining balance on which interest is paid (e.g., investable balance, low balance, average daily balance, etc.) for four types of accounts, (2) provision of written disclosure statements on account opening for six types of accounts, (3) provision of written notification of adverse changes in account terms for five types of accounts, (4) notification of upcoming maturity of certificates of deposit that are automatically reinvested for four ranges of term to maturity, and (5) notification of upcoming maturity of certificates of deposit that are not automatically reinvested for four ranges of term to maturity.

¹⁴ Counting the number of times a practice must be changed is somewhat arbitrary. All changes are unlikely to require equal effort. To ensure that our results do not depend on a particular way of counting changes, we constructed several variables that counted additional requirements, including one that counted each item required on Truth in Savings disclosures. We also considered other ways of counting changes: (1) counting changes in representative accounts, in this case, interest-bearing checking and one- to six-month certificates; (2) counting each change once if it is required for any one of the account types; and (3) including dummy variables for specific changes. No matter which measure of change is used, the results of estimation are substantially similar to those reported here.

provide the proper disclosures for each account variety. Therefore, offering a greater number of account varieties may be associated with greater compliance costs.

Table I provides descriptive statistics for these variables.

Table 1. Descriptive statistics

Variable	Small Banks		Medium-Sized Banks		Large Banks	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Start-up cost, dollars (c)	15,896	24,945	26,668	31,539	238,517	335,618
<i>Output</i>						
Number of consumer deposit accounts (Q_1)	5,781	3,323	21,857	13,132	378,558	609,327
Number of changes in account practices (Q_2)	3.40	3.41	2.99	2.81	2.47	2.57
Number of different account varieties (Q_3)	15.27	8.70	18.49	10.55	20.28	11.84
Average size of consumer deposit accounts, dollars (Q_4)	8,753	282	8,853	290	8,870	340
<i>Factor prices</i>						
Price of labor input, dollars per hour ¹ (P_1)	32.27	8.08	30.34	6.64	36.86	11.77
Price of capital input, dollars per sq. ft ² (P_2)	132.41	27.49	133.83	36.66	142.51	43.46
<i>Other</i>						
State disclosure law dummy (H_1) ³	0.26	0.44	0.31	0.47	0.33	0.47
Multibank holding company bank (H_2)	0.36	0.48	0.51	0.50	0.78	0.42

Notes: ¹Salary and benefits per employee per hour (salary and benefits, including incentive compensation, of all officers and employees/(number of full-time equivalent employees \times 2,080 hours/year)). Source: Federal Financial Institutions Examination Council, *Reports of Condition and Income*, 1993.

²Replacement cost for new office buildings (total cost of new office construction/total square feet, for nine regions of the United States). Source: F. W. Dodge Division, *Construction Potentials Bulletin: Summary of Construction Contracts for New Additions and Major Alteration Projects*, 1993.

³States with disclosure laws were Illinois, Iowa, Maryland, Massachusetts, New York, Ohio, Rhode Island, Texas, and Wisconsin.

Average size of consumer deposit accounts is included as an output homogeneity variable. Although disclosures are associated primarily with the existence of an account, larger accounts may have more features-and thus require more extensive disclosures than smaller accounts. For this reason, we expect compliance costs to rise but likely less than proportionately with the average size of consumer deposit accounts.

3.2. Factor input prices

The model includes the prices of two factors, labor and capital. For the price of labor, the bank's average hourly rate of salary and benefits for all officers and employees is used. This rate is derived from Call Report data on salary and benefit expenses and the number of full-time equivalent employees. For the price of capital, we use the replacement cost of bank office buildings per square foot, which is derived from regional data on new construction (E W. Dodge Division, 1993).

3.3. Other variables affecting compliance costs

The model considers two other factors that might affect compliance costs. The existence of state disclosure laws for consumer deposit accounts might affect compliance costs.¹⁵ The effect of this factor is uncertain. On the one hand, adapting an existing compliance program to the new federal requirements may be less costly than developing a new compliance program. On the other hand, since the state and federal laws are not the same, there may be little difference in cost between adapting an existing compliance program or developing a new one.

The second factor is affiliation with a multibank holding company. Holding company banks may be able to share some compliance activities with the lead bank or other affiliated banks, thereby achieving lower overall compliance costs than otherwise similar independent banks. Therefore, we expect start-up compliance costs of holding company banks to be inversely related to affiliation with a multibank holding company.

3.4. Functional form

For this paper, we estimate separate Cobb-Douglas cost functions for small (assets less than \$100 million), medium-sized (assets between \$100 million and \$499 million), and large (assets \$500 million or more) banks.¹⁶ An advantage of the Cobb-Douglas functional form is its tractability. It has a manageable number of parameters, and estimated coefficients—such as the coefficient for scale—can be interpreted directly as elasticities. It has the disadvantage that it maintains restrictive assumptions about technology. In particular, the assumption of homogeneity in output restricts estimates of economies of scale to be constant values. Previous work on cost functions of financial institutions suggests that this assumption is unlikely to be satisfied. Our approach mitigates against this disadvantage of the Cobb-Douglas form by allowing compliance technologies to vary by size group of banks, which provides a more flexible structure for studying costs than a single Cobb-Douglas function.¹⁷

Including the variables discussed previously, the Cobb-Douglas compliance cost function for the i th size group of banks is written as follows:¹⁷

$$\ln C = \alpha^i + \beta^i_1 \ln Q_1 + \beta^i_2 \ln Q_2 + \beta^i_3 \ln Q_3 + \beta^i_4 \ln Q_4 + \gamma^i \ln P_1 \\ + (1 - \gamma^i) \ln P_2 + \delta^i_1 \ln H_1 + \delta^i_2 \ln H_2 + \varepsilon$$

where Q_1 , is the number of consumer deposit accounts, Q_2 is the number of changes in deposit account practices required by Truth in Savings, Q_3 is the number of different

¹⁵ As mentioned in table 1, Illinois, Iowa, Maryland, Massachusetts, New York, Ohio, Rhode Island, Texas, and Wisconsin had disclosure laws for consumer deposit accounts.

¹⁶ The size categories for estimation are the same as the size categories for sampling, eliminating the issue of weighting estimates for unequal probabilities of selection.

¹⁷ We also estimate a compliance cost function using the transcendental logarithmic (translog) function, which permits estimation of nonhomogeneous cost function. The translog function also has limitations. It is more difficult to interpret because it has numerous squared and cross-product terms, and recent evidence (McAllister and McManus, 1993) raises questions about its ability to represent behavior globally. Our estimates of elasticities from the translog compliance cost function do not differ substantially from ones from Cobb-Douglas compliance cost functions, which are reported here.

account varieties, Q_4 is the average size of consumer deposit accounts, P_1 is the price of labor, P_2 is the price of capital, H_1 is a dummy variable that equals 1 if the bank is in a state with a state disclosure law for consumer deposit accounts and 0 otherwise, and H_2 is a dummy variable that equals 1 if the bank is part of a multibank holding company and 0 otherwise.

4. Results

Regression equations were estimated using ordinary least squares. For each asset-size group of banks, the estimated compliance cost function is significant at the 1% level (table 2). Taken together, the three equations explain 59% of the variation in compliance costs for implementing Truth in Savings.¹⁸

Table 2. Estimated compliance cost functions for implementing Truth in Savings

Variable	Small Banks			Medium-sized Banks			Large Banks		
	Coeff.	Std. Error	t-ratio	Coeff.	Std. Error	t-ratio	Coeff.	Std. Error	t-ratio
<i>Output</i>									
Number of consumer deposit accounts (ln Q_1)	0.560**	0.081	6.881	0.600**	0.095	6.287	0.652**	0.072	9.045
Number of changes in account practices (ln Q_2)	-0.041	0.056	0.730	0.171**	0.060	2.841	0.044	0.106	0.414
Number of different account varieties (ln Q_3)	0.219*	0.101	2.171	0.220*	0.105	2.106	-0.040	0.143	0.279
Average size of consumer deposit accounts, dollars (ln Q_4)	0.481**	0.170	2.832	0.356 [†]	0.196	1.815	0.263	0.225	1.167
<i>Factor prices</i>									
Price of labor input (ln P_1)	0.734**	0.166	4.415	0.772**	0.157	4.926	0.697**	0.147	4.761
Price of capital input (ln P_2)	0.266	0.166	1.600	0.228	0.157	1.452	0.303*	0.147	2.065
<i>Other</i>									
State disclosure law dummy (H_1)	-0.014	0.106	0.132	-0.042	0.109	0.385	-0.141	0.181	0.780
Multibank holding company bank (H_2)	-1.146**	0.106	10.820	-0.583**	0.103	5.647	0.099	0.192	0.515
Intercept	-3.929*	1.770	2.220	-3.512	2.231	1.574	-2.512	2.399	1.047
F-ratio	27.810**			16.358**			17.758**		
Number of banks	392			321			174		

Notes: [†]Significantly different from 0 at the 10% level.

*Significantly different from 0 at the 5% level.

**Significantly different from 0 at the 1% level.

The F-statistic for testing the hypothesis that the cost function coefficients are equal across groups ($\alpha^1 = \alpha^2 = \alpha^3$; $\beta^1 = \beta^2 = \beta^3$ for all j ; $\gamma^1 = \gamma^2 = \gamma^3$; and $\delta^1 = \delta^2 = \delta^3$ for all j) is 3.00. This value is significant at the 1% level, and we reject the hypothesis that the coefficients are equal. Thus, our statistical analysis supports the use of separate cost functions for different sizes of banks rather than a single Cobb-Douglas cost function for all banks.

The coefficients of the output variables are of particular interest in assessing start-up costs of the law. First, the coefficients for number of consumer deposit accounts, Q_1 , are positive and significantly less than unity, which suggests the existence of economies of scale in implementing Truth in Savings in all three-size groups. The coefficients for Q_1 , indicate

¹⁸ Residual plots provided no evidence of heteroscedasticity.

that a 10% increase in the number of consumer deposit accounts increases compliance costs 5.60% for small banks, 6.00% for medium-sized banks, and 6.52% for large banks.¹⁹ Since the start-up compliance costs rose less than proportionately with number of accounts, banks with fewer accounts faced higher average costs in implementing Truth in Savings than banks with more accounts. These results are illustrated graphically in figure 1. The conclusion of scale economies is true regardless of bank asset-size group, although scale economies for number of accounts are smaller for large banks than for small and medium-sized banks.

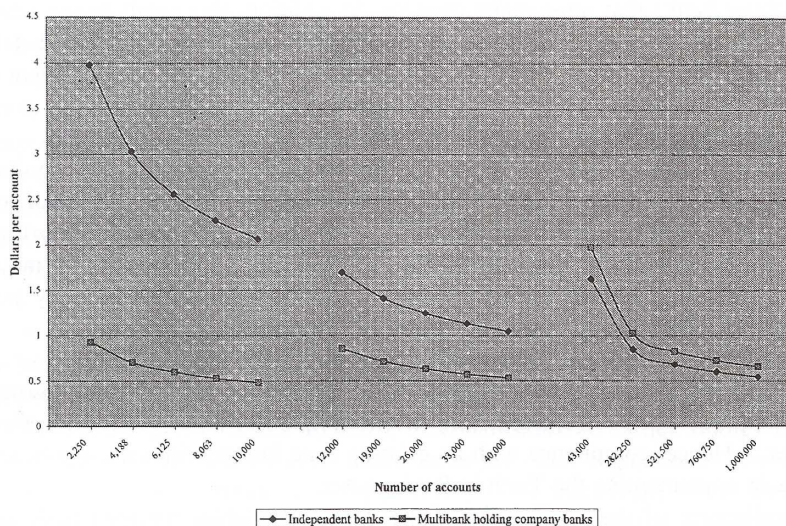


Figure 1. Average start-up cost, by number of accounts and multibank holding company affiliation

Concluding that start-up compliance costs for Truth in Savings exhibit economies of scale is reasonable. Economies of scale generally are attributed to indivisibilities in factor inputs (Silvestre, 1987), which seem likely for a disclosure regulation. The software required to generate required disclosures generally cannot be divided, for example. A bank buys an entire package, which it then can use to produce any number of disclosures. If the cost of the software is fixed, the average cost of disclosures would decrease as the number of disclosures increases. Another example of indivisibility is the time needed to learn the requirements of a regulation. Bank officers cannot afford to learn only part of a regulation nor can employees be partially trained.

The finding of significant scale economies in start-up costs for Truth in Savings is similar to findings of Murphy (1980) for the Equal Credit Opportunity Act and Schroeder (1985) for the Electronic Fund Transfer Act. Each of these regulations also has significant disclosure requirements.

¹⁹ Estimates of scale economies for number of accounts from a translog cost function are similar: A 10% rise in the number of accounts increases compliance costs 5.6% for small banks, 6.2% for medium-sized banks, and 7.0% for large banks when the elasticities are evaluated at the means of the asset-size groups.

The coefficients for the number of changes in deposit account practices, Q_2 , are significantly less than unity. For the small and large bank groups, the coefficients are small and not significantly different from 0. For the medium-sized bank group, the estimated coefficient indicates that a 10% rise in the number of required changes increases compliance costs 1.71%. These results suggest that the costs of implementing Truth in Savings were insensitive to how much banks had to change their practices for deposit accounts.²⁰ Banks incur costs in implementing the regulation—for example, evaluating the requirements of a regulation, determining the extent to which the regulation requires changes in existing practices, and ensuring that practices comply with the regulation even if little or no substantive change in existing practices is required. In other words, a substantial share of the costs of implementing Truth in Savings is fixed. This result is new. If applicable to other new regulations or regulatory changes, it suggests that a general requirement to alter an infrequent practice may impose nonnegligible costs on all banks, not only those banks that must make changes. In addition, this result argues against a policy of making frequent minor revisions in regulations. Instead, a policy of delaying revisions until some number have been accumulated and then making infrequent major revisions of regulations may reduce implementation costs by allowing banks to exploit economies of changing practices.

The coefficients for the number of account varieties, Q_3 , are positive and significantly different from 0 for small and medium-sized banks. The coefficient for number of account varieties is not significant for large banks. If other disclosure regulations had similar effects, much of federal consumer protection regulation for financial services may have discouraged small and medium-sized banks from offering customers many account choices and inhibited their ability to compete with large banks.²¹

The coefficients for the state disclosure law dummy variable are negative but small and not significant. Although both the federal Truth in Savings and state disclosure laws primarily require written disclosures, the specific requirements of the federal and state laws differ.²² Hence, compliance with an existing state law provides no significant cost advantage in implementing the Truth in Savings Act.

The significance of the coefficients of the dummy variables for multibank holding company ownership also is notable. The coefficients for small and medium-sized banks, but not for large banks, are significant. The coefficients indicate that small and medium sized banks owned by multibank holding companies had proportionately lower start-up costs than similarly sized independent banks (including banks owned by one-bank holding companies). Indeed, holding other variables constant, small and medium-sized banks

²⁰ All the different ways of counting changes produce results substantially similar to these. In models using dummy variables to indicate changes, the coefficients of the dummy variables are small, generally insignificant, and summed to less than unity. Elasticities for changes estimated from a translog cost function are between about 0 and 0.14 depending on the size group of banks and the amount of change assumed.

²¹ By itself, this finding does not suggest whether or not Truth in Savings would cause banks to offer fewer account varieties. Truth in Savings still might induce banks to offer fewer account varieties to reduce ongoing costs of regulation. It also is possible that banks might use the implementation of the regulation as an excuse to eliminate less-profitable account varieties.

²² The state laws also differ from each other, but differences among state laws do not appear to produce the insignificant results. When cost functions with separate dummy variables for each state law were estimated, none of the individual state law dummy variables were significant.

owned by multibank holding companies' average start-up costs were similar to large banks' average start-up costs (see figure 1). This result is consistent with the hypothesis that holding company banks may be able to share some compliance activities with affiliated banks. The coefficient for medium-sized banks owned by bank holding companies is about half the size of that of small banks, and as mentioned, the coefficient for large banks is not significant. Thus, the advantage to a bank of sharing costs through a multibank holding company would appear to decline as bank size increases and may not be very great when the bank is large.

5. Conclusions

This study breaks new ground in examining the effect of the amount of required changes on start-up compliance costs, using data from a survey of the costs of implementing the Truth in Savings Act. The findings for Truth in Savings may apply more generally to other consumer protection regulations for financial services. Many consumer protection regulations for financial services are primarily disclosure regulations. Firms typically provide information, both written and oral, but usually not exactly according to the form and timing proscribed by the regulation. This situation leads to a compliance process that is very much like that found for Truth in Savings.

We find that start-up compliance costs for Truth in Savings were insensitive to the extent of changes required to implement the regulation. Banks incurred costs in implementing the regulation regardless of how much they have to change their practices. This result has important implications for regulatory policy. It suggests that a general requirement to alter an infrequent practice may impose nonnegligible costs on all banks, not only those banks that must make substantive changes in their practices. In addition, this finding argues against a policy of making frequent minor revisions in regulations. Instead, a policy of delaying revisions until some number have been accumulated and then making infrequent major revisions of regulations may reduce implementation costs by allowing banks to exploit economies of changing practices. Empirical evidence has not been available before this study to address these issues. Both implications run counter to political and bureaucratic instincts to act quickly when a problem is perceived and avoid major changes that risk inciting controversy.

Our analysis also found economies of scale in compliance for Truth in Savings: A 10% greater number of consumer accounts was associated with higher costs of implementing the regulation of 5.6% for small banks, 6.0% for medium-sized banks, and 6.5% for large banks. This result gives further credence to conclusions of earlier studies that found economies of scale in start-up compliance costs for other regulations (Murphy, 1980; Schroeder, 1985). One implication of this result is that small firms have a cost disadvantage in complying with new regulations. Another implication is that regulation in an early stage of the product life cycle, when the rate of output is low, involves relatively greater compliance cost than regulation in a later stage.

Other findings are that, for small and medium-sized banks, start-up costs for Truth in Savings increased with the number of account varieties offered and were greater for independent banks than multibank holding company banks. Also, banks subjected to state disclosure laws for consumer deposit accounts did not incur significantly lower start-up

costs for Truth in Savings than other banks, probably because the state laws generally had different provisions than the federal law.

Appendix: Requirements of Truth in Savings and Regulation DD

Requirements for consumer checking, money market and savings accounts

Initial disclosures (new accounts)

Disclosures must be in writing.

Disclosures must include information the following terms:

- Rates, including both annual percentage yield and interest rate; Frequency of compounding and crediting;
- Minimum balance requirements;
- Method of computing balance;
- Fees;
- Limitations on transactions;
- Amount and type of any bonuses provided and conditions for receiving bonuses.

Subsequent disclosures

Notice of adverse changes in terms must be provided 30 days in advance of change.

Disclosure required of change and effective date for all items included in initial disclosure.

Periodic statement disclosures

Periodic statements are not required, but if they are provided they must include information on the following terms:

- Annual percentage yield earned during statement period;
- Amount of interest earned;
- Fees imposed;
- Number of days in reporting period.

Advertising information required

If a rate of return is stated, it must be stated as an annual percentage yield. Advertising also must include, if relevant, information on the following terms:

- For variable rates, a statement that the rate may change;
- Period of time for which rate will be offered;
- Minimum balance required to receive rate;
- Minimum opening deposit;
- Statement that fees could reduce earnings;
- Conditions for receiving bonuses.

Computation of interest

Interest must be paid on the full balance in the account, on a daily or average daily basis.

Requirements for time deposits

Initial disclosures

Disclosures must include information on the following terms:

- The term to maturity;
- Penalty provisions for early withdrawal;

Options available at maturity, including withdrawal or reinvestment;
Interest rate, including all applicable calculation and compounding rules;
Interest reinvestment and disbursement options;
Grace period transactions, including withdrawals and deposits;
Security interest and offset provisions.

Notice for maturing time accounts

Accounts automatically renewed
Advance notice required for accounts that are automatically renewed 30 days before maturity or 20 days before end of grace period.

Notice must include the following:

Interest rate and annual percentage yield;
Date of maturity;
Change in terms or full disclosures for account.

Accounts with terms to maturity greater than a year and not automatically renewed

Advance notice must be given 10 days before maturity date.

Notice must include the maturity date.

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