

The Patriot Act's Differential Impact on Large and Small Banks: Evidence from California's High-Risk Money Laundering and Related Financial Crime Areas^{*}

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Revised July 2009

Draft: Not for Quotation without Permission

Abstract

The anti-money laundering (AML) provisions of the USA Patriot Act of 2001 significantly expanded the private sector's role in disrupting the financial operations of terrorist groups and criminal organizations. In doing so, the law imposed substantial compliance costs on the financial services industry as a whole. In this study, we apply the heterogeneous-firm model of regulation to investigate whether enforcement of the new AML measures also has caused some commercial banks and thrifts to shoulder heavier compliance-cost burdens than others. Using a dataset comprising banking institutions that operate half or more of their branches within California counties designated as "high-risk money laundering and related financial crime areas", the empirical results indicate that AML compliance costs have fallen disproportionately on smaller financial institutions, suggesting that the Patriot Act has, intentionally or not, produced an intra-industry redistribution of wealth.

Keywords: USA Patriot Act; high-risk money laundering and related financial crime areas; anti-money laundering; commercial banks; thrifts; heterogeneous-firm model of regulation

JEL Classification Numbers: D72, D78, H23

^{*} This article is based on the first-named author's doctoral dissertation (Dolar 2007). We benefited from comments by committee members Mark Van Boening, Jon Moen and Milorad Novicevic, all of whom added considerable value to the paper. As is customary, however, the authors accept full responsibility for any remaining errors.

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1. Introduction

Although expressed in various ways, the definition of money laundering is fairly precise. The United Nations International Drug Control Program (1997), for example, defines money laundering as the “process by which one conceals the existence, illegal source, or illegal application of income and then disguises or converts that income to make it appear legitimate.” Another definition of money laundering is provided by Hinterseer (1997, p. 158), who writes that “money laundering is an economic process that creates a bridge between the informal/illegal and formal/legal economy.”

Mobsters, terrorists and other criminal organizations launder through legitimate financial channels the funds raised from smuggling arms, trafficking in narcotics or human beings, running “numbers’ games” or protection rackets, and engaging in extortion, fraud, corruption, or insider trading in order to finance their ongoing illicit activities or simply to live the good life. Money laundering is nowadays a big business. Former International Money Fund (IMF) Managing Director Michel Camdessus estimates that two to five percent of global Gross Domestic Product (GDP) – or some \$1,245 billion to \$3,113 billion (based on 2008 figures reported by the Central Intelligence Agency) – is laundered every year.¹ Charles (2004) reckons that 50% of money laundering activity worldwide takes place in the US financial system as a whole, with 47% of the global total laundered through US banks.

¹ The global volume of money laundering is substantial at either end of the range. In 2008, for example, the GDPs of Germany, France, Canada, and India were (in billions) \$3,818, \$2,978, \$1,564, and \$1,237, respectively (Central Intelligence Agency 2009).

In the United States, money laundering became an issue of public debate in the 1970s as law enforcers began grappling with organized crime, particularly trafficking in narcotics. However, the anti-money laundering (AML) legislation passed at beginning of that decade – the Bank Secrecy Act of 1970 – was not strictly enforced until the mid-1980s and, in fact, it was not until 1986 that money laundering was made a criminal offense. During the 1990s, money laundering became a more complex (and worrisome) issue as financial markets liberalized and globalized (Hetzer 2003). Following the terrorist attacks on September 11, 2001, enactment of the USA Patriot Act changed fundamentally regulatory attempts to grapple with money laundering both in the United States and the rest of the world. Reinforced by the growing threat of terrorism, money laundering has moved toward the top of the list of global public policy concerns.

The Money Laundering and Financial Crimes Strategy Act of 1998, the last of the AML laws passed in the United States prior to the Patriot Act, required the Department of the Treasury, in consultation with the Department of Justice and other related government offices, to designate certain geographical areas as “high-risk money laundering and related financial crime areas” (HIFCAs).² The 1998 law states that HIFCA designations must be made on the basis of a determination that money laundering and related financial crimes are extensive or present a substantial risk in an area, and the area is being victimized by or is particularly vulnerable to such crimes (The Money Laundering and Financial Crimes Strategy Act, Subchapter III, § 5342).³

² In addition to geographical areas, financial systems, industry sectors, and individual financial institutions can also be designated as HIFCAs (The Money Laundering and Financial Crimes Strategy Act, Subchapter III, § 5342).

³ A number of other factors must be considered in designating a geographical area as a HIFCA. Some of these factors are: the population of the area; the number of banks, nonbank financial institutions, and stock or commodities transactions originating in the area; whether the area is an international center for banking or commerce and whether it is a key transportation hub; the volume and nature of suspicious activity and

Four HIFCAs, namely the New York/New Jersey Region, the Southern California District, the Puerto Rico Region, and the Southwest Border, were announced in 2000 (US Department of the Treasury and US Department of Justice 2000). The following year, two new HIFCAs – the Illinois Northern District and the Northern California District – were added to the list (US Department of the Treasury and US Department of Justice 2001). The South Florida HIFCA, designated in 2003, was the last such announcement. The stated purpose of the HIFCA designations is to concentrate law enforcement efforts at the federal, state, and local levels to combat money laundering in high-intensity money laundering zones (US Department of the Treasury and US Department of Justice 2000). According to the 2001 National Money Laundering Strategy, the HIFCA Task Forces, which are composed of all relevant law enforcement authorities, prosecutors, and federal financial supervisory agencies, occupy the flagship role in fighting against large-scale money laundering systems.

The Patriot Act is a comprehensive counterterrorism law passed shortly after the events of September 11, 2001. Title III of the Patriot Act reformed US money laundering laws for the purpose of disrupting the financial networks supporting criminal and terrorist organizations; it is considered to be one of the most extensive AML legislation ever enacted in the United States (Preston 2002). Its justification was that owing to significant and continuous changes in money laundering techniques, existing AML measures did not provide the tools law enforcement agencies needed to counter the growing problem.

The Patriot Act has imposed a substantial compliance-cost burden on the banking industry as a whole, which is the law's most visible or direct effect. In addition, however,

currency transaction reports originating in the area; observed changes in patterns of money laundering activity; and indicators of unusual volumes of cash transactions (The Money Laundering and Financial Crimes Strategy Act, Subchapter III, § 5342).

the AML legislation of 2001 possibly produced significant “indirect effects”, which we aim to shed light on in this paper. These indirect effects stem from regulatory-mediated asymmetries in compliance costs and law-enforcement effort that potentially create winners and losers within the banking industry and, hence, an intra-industry redistribution of wealth.⁴

Based on a dataset comprising commercial banks, savings and loan associations, and savings banks (the latter two are also called “thrifts”) operating at least half of their branches in California counties within one of the state’s two HIFCAs, we test whether or not the AML regulations written to implement Title III have, by imposing an asymmetrical compliance-cost burden on the banking industry, conferred a competitive advantage on larger banks.⁵ Focusing attention on institutions that operate half or more of their branches in HIFCA counties allows us to test for differences in the distribution of the AML compliance-cost burden across a set of banks and thrifts that should be subject to roughly the same intensity of regulatory scrutiny. In a heterogeneous-firm model of regulation, different cost and organizational structures create incentives for a subset of an industry’s firms to capture artificially created scarcity rents. A “one-size-fits-all” approach is predicted by that model to produce an intra-industry redistribution of wealth

⁴ Bartel and Thomas (1987) divide the effects of regulation into two categories. The direct effects of regulation increase operating costs for the industry as a whole. The indirect effects of regulation create competitive advantages because of the asymmetrical (or heterogeneous) distribution of the regulatory burden across different industry subgroups. For example, if one group of firms bears a higher cost burden to comply with the regulation than another, regulation confers a competitive advantage on the latter. Bartel and Thomas argue that regulation can in fact yield net benefits for one subgroup if its positive indirect effects offset its negative direct effects.

⁵ The California Southern District HIFCA comprises the counties of Los Angeles, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, and Ventura. The counties of Alameda, Contra Costa, Del Norte, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Cruz, and Sonoma are under the jurisdiction of the California Northern District HIFCA.

in favor of firms that are able to adapt to regulatory requirements at lower cost than their less efficient rivals.⁶

In order to test our hypothesis, we look at the effects of the Patriot Act on three indicators of financial condition (return on assets, net operating income relative to assets and return on equity) of banks operating at least half of their branches in California's HIFCA counties. The empirical results indicate that smaller institutions, particularly large community banks and midsize banks, have experienced a decline in profitability relative to their larger rivals in the post-Patriot Act period. This finding suggests that the cost of complying with Title III of the Patriot Act has imposed a heavier burden on smaller banks than on larger institutions, benefitting the former at the expense of the latter.

2. The effects of regulation on intra-industry redistribution of wealth

In the simplified version of the "capture theory" of regulation (Stigler 1971), by allying itself with legislators, regulatory agencies, or both, a well-organized industry uses regulation as a means of maximizing the profits of its members at the expense of politically unorganized consumers. On the other hand, in Peltzman's (1976) more general theory of regulation, regulators seek a balance between the interests of producers and consumers based on the political support each group is capable of providing (indicating incomplete Stiglerian capture). The interest-group theory of government (McCormick and Tollison 1981) emerged from this Stigler-Peltzman formulation of the economic theory of regulation and has been brought to bear effectively in analyzing various economic regulations (e.g., railroads, public utilities and many others).

⁶ Note that in the heterogeneous-firm model of regulation, the demanders and suppliers of wealth transfers are determined by each group's comparative advantages in transfer-seeking; as such, wealth transfers do not necessarily benefit large firms at the expense of small ones, as we hypothesize (and find) herein.

Nevertheless, in many cases of economic as well as social regulation, firms within an industry have competing interests in the regulatory process. As such, the regulatory agency may be “captured” by a subset of the regulated industry and, if so, regulation serves the interests of that subgroup at the expense of their rivals (and consumers). According to Altrogge and Shughart (1984, p. 56), “Peltzman also observes that even if the regulator is constrained by ‘due process’ considerations, such constraints will typically not require gains or losses to be distributed equally among the members of the relevant group.” Buchanan and Tullock (1975) were the first economists to construct a heterogeneous-firm model of regulation. That model suggests that imposing the same regulatory standards on an entire industry can make the more efficient members of it better off (Tollison 1991).

In his paper on wage rates as a barrier to entry, Williamson (1968) analyzes the conditions that enable a subgroup of firms to gain advantage over others by supporting increases in wage rates that apply to the industry as a whole. He argues that industry-wide wage agreements with labor unions can be used to secure monopoly-like advantages in a market, leading to a redistribution of wealth from labor-intensive to capital-intensive firms. According to Williamson, large firms can discourage entry by small-firms and force others to exit the market if collective bargaining agreements impose disproportionately higher wages costs on firms that rely more heavily on labor as an input.

Marvel (1977) analyzes Lord Althorp’s Factory Act of 1833, the nineteenth-century British child labor law. Contrary to the established belief that the law was designed to protect women and children from exploitation by textile manufacturers, he

provides evidence indicating that the principal motivation behind the law was to advance the interests of the owners of steam-powered textile mills at the expense of those of their water-powered competitors, which depended more on the labor supplied by those two categories of workers. Ekelund and Tollison (2001, p. 361) summarize Marvel's theory and evidence as supporting a "heterogeneous-firm model of regulation in which different cost structures lead some firms in an industry to seek regulatory advantages over others." In that model (which assumes an upward-sloping and less-elastic industry supply curve from labor-intensive firms), lower-cost, capital-intensive manufacturers seek advantage (redistribution of wealth) over their labor-intensive rivals by lobbying for a regulation that raises wage rates industry-wide.

According to Maloney and McCormick, winners and losers often are created within an industry as a result of environmental quality regulations. Maloney and McCormick (1982, p. 105) argue that any such regulation, which increases everyone's costs, is likely to generate an intra-industry redistribution of wealth because, "if the most efficient firms in the industry can comply most cheaply with the law, then the industry supply curve will shift upward and become more inelastic; market price will increase more than costs for some firms. The rents of marginal firms will decline and some will exit as they face higher costs."

Pashigian (1984) also challenges the public-interested motivations of environmental quality regulations and explains some aspects of these regulations by focusing on intra-industry conflicts. According to him (Pashigian 1984, p. 2), "environmental regulations can be drawn to favor one group of producers in an industry over another group and to redistribute intra-industry rents". Although environmental

regulations impose compliance costs on small and large firms alike, the former bear relatively greater compliance burdens than the latter. In industries affected by the legislation Pashigian studies, the total number of plants decreased and average plant size increased afterwards. Moreover, the regulations reversed the fortunes of the larger firms, whose market shares had been declining owing to the entry and success of smaller rivals. Indeed, the market shares of the large firms actually increased in the wake of regulatory intervention.

According to Bartel and Thomas (1985), regulatory compliance-cost asymmetries potentially arise whenever a subgroup of firms in an industry bears a higher burden than another industry subgroup and that such asymmetries are more likely to be observed when the same regulatory requirements are imposed on all of the regulated industry's members. In studying the regulations promulgated by the Occupational Safety and Health Administration (OSHA), Bartel and Thomas argue that there are two main causes of such cost asymmetries. First, owing to economies of scale in compliance, higher costs are imposed on smaller firms, on the average, than on their larger competitors. Second, provided that firms with unionized workforces have more stringent safety standards in place prior to the promulgation and enforcement of OSHA regulations, such federal requirements are likely to benefit unionized firms by imposing 'union-dictated' safety standards on non-unionized firms.

Studies conducted in different industries and regulatory settings yield similar conclusions. Evidently, one-size-fits-all regulations are likely to create significant intra-industry redistributions of wealth flowing from compliance-cost asymmetries when firms differ in terms of their institutional characteristics, including but not limited to size, cost

structure, level of unionization, shares of factors of production, geographical location, regulatory agency, and local versus national scope.⁷

Applying the heterogeneous-firm model to analyze an economic or social regulation requires satisfying certain assumptions regarding the industrial organization of the industry studied. The commercial banking and thrift industries comport with the assumptions of the model (McCormick and Tollison 1981). Large banks represent a relatively small, homogeneous group with more concentrated interests in the relevant (AML) regulatory process. Taking advantage of its small group size, large banks are able to control free-riding at lower cost. Small banks, on the other hand, constitute a relatively large, heterogeneous group with less well-defined interests in the designing and implementation of AML rules. Small, independent banks have widely divergent interests in regulatory outcomes and lack the resources to lobby for favorable regulatory treatment. Because the financial stakes are greater, large banks, in contrast, would be more willing to spend more, both individually and collectively, to influence the regulatory process. In the heterogeneous-firm model of regulation, large banks therefore possess the characteristics of demanders of wealth transfers, while small banks possess the characteristics of suppliers of wealth transfers.

3. The asymmetrical burden of AML compliance within the banking industry

The Patriot Act is considered to be a milestone in the history of US AML legislation. The 2001 law tightened the AML rules with which financial institutions are required to comply and strengthened their enforcement. The rules promulgated in 2002 impose strict AML regulations on a wide range of private businesses, most of which, not surprisingly,

⁷ See Altrogge and Shughart (1984), Bartel and Thomas (1987), Anderson et al. (1988), Ekelund et al. (1995), and Hovenkamp (2005), among others.

operate in the financial services industry. Title III's provisions require developing written AML policies and procedures; establishing enhanced due diligence practices for customer identification and verification; implementing stricter recordkeeping and reporting measures; cross-checking the names on accounts with various government lists of individuals and organizations known or suspected of being involved in money laundering and terrorism; appointing compliance officers to administer AML policies and provide guidance to other employees; designing an ongoing employee training program; conducting independent audits to test the effectiveness of AML policies; and involving top management in the process (Dolar and Shughart 2007). The costs incurred by the banking industry as a whole in complying with Title III of the Patriot Act have been far greater than the costs associated with earlier AML laws. Roberts (2004, p. 592), for example, reports that, "banks, brokerage firms, and other financial institutions spent over \$11 billion in 2002 to strengthen their internal AML controls."⁸

The chief source of the Patriot Act's potential asymmetrical intra-industry effects is anchored in the existence of economies of scale in regulatory compliance. The relevant literature on the costs of conforming to new banking regulations provides convincing evidence of substantial scale economies both at the start-up phase and in ongoing compliance activities.⁹ Financial regulations impose a substantial cost burden on the banking industry as a whole. However, given scale economies in regulatory compliance,

⁸ Other compliance-cost estimates are of the same order of magnitude. Der Hovanesian and Fairlamb (2003), citing a study conducted by Celent Communications, a US-based financial consulting firm, claim that US financial institutions now spend more than \$11 billion annually to comply with AML controls. A global study of about 200 banks conducted by the consulting firm KPMG shows that banks increased AML spending by an average of 61% in the three-year period running from 2001 to 2004 ("Looking in the Wrong Places-Financing Terrorism" 2005).

⁹ Dolar and Shughart (2007) report evidence from a large national panel dataset suggesting that complying with the AML provisions of the Patriot Act has imposed a disproportionately heavier burden on smaller commercial banks and thrifts than on larger ones.

larger institutions gain a competitive advantage because their smaller rivals have fewer accounts, fewer customers or fewer transactions over which regulatory costs, most of which are fixed, can be spread (Newman 2003). In other words, the existence of economies of scale in complying with banking regulations means that the average costs of smaller institutions rise proportionately more than do the average costs of larger ones (Elliehausen 1998). According to Schroeder (1985, p. 4), “small institutions experience a cost disadvantage in [regulatory] compliance because small institutions incur many of the same costs as large institutions do in setting up and maintaining their compliance programs, and therefore they must devote a larger proportion of their resources to compliance.”¹⁰

Another source of competitive advantage for larger institutions is that “regulatory costs might inhibit the entry of new firms into banking or might stimulate consolidation of the industry into fewer, larger banks” (Elliehausen 1998, p. 25). And it is small-scale entry that is likely to be deterred.

A third source of competitive advantage is that many, perhaps most, large commercial banks and thrifts had comprehensive AML procedures in place prior to the Patriot Act’s passage.¹¹ Owing to their complex organizational structures and extensive customer bases, large institutions adopted standardized AML programs long ago. They

¹⁰ AML compliance costs may amount to as much as 20% of profits of small institutions, on the average (“The Hunt for Dirty Money” 2003). An additional threat to small institutions is that the new AML rules require the gathering of detailed information on customers and their financial transactions. That regulatory requirement may interfere with small institutions’ ability to exploit their traditional market niche, which emphasizes personal and reciprocal trust relationships as well as customer-friendly service.

¹¹ Linneman (1980) supplies an apt analogy. He argues that the Consumer Product Safety Commission’s 1973 Mattress Flammability Standard imposed a differentially heavy compliance-cost burden on small producers and, hence, redistributed income from them to their larger rivals. That wealth transfer took place in the form of quasi rents earned by the larger firms, whose products already met the new regulatory requirements prior to 1973. Regarding the effects of the Coal Mine Health and Safety Act of 1969, Neumann and Nelson (1982, p. 198) argue that “as the costs of decreased competition are less visible than the direct benefits of accident prevention and since a vested interest in support of greater competition is not likely to exist, a bias toward improving safety at the expense of competition is likely to occur.”

consequently were better equipped to comply with Title III. To the extent that regulators cooperated with large banks in designing the Patriot Act's AML provisions (and in writing the rules to enforce it), the new law provided an opportunity for large banks to impose their AML standards on the entire industry, thus gaining a significant edge over smaller competitors.

Efforts by a subset of financial institutions to impose uniform AML standards on the entire banking industry were well underway before the Patriot Act was passed (Small 1999). Rather than reinventing the wheel, banking regulators based their "know your customer" policy requirements on the methods already in place at (and in the budgets of) large banks (Biern 1998). No evidence exists, however, that that subset of institutions explicitly lobbied for favorable regulatory treatment when the new AML regulations for enforcing Title III were being written. In fact, the patriotic fever in the immediate post-9/11 environment eliminated the need for them to do so. Smaller institutions, which then faced a differentially heavy AML compliance-cost burden, could not voice their concerns or challenge regulatory rule-making initiatives for fear of being accused of not fulfilling their responsibilities in the freshly critical, high-profile fight against unlawful money laundering and the financing of al-Qaeda ("The Needle in the Haystack" 2002).¹²

Although it may be cold comfort to small banks and thrifts, there is a perhaps more benign explanation for the adoption of regulations imposing uniform AML standards on the entire financial services industry. Regulators, like everyone else, are

¹² In studying the effects of environmental regulation on plant size and factor shares, Pashigian (1984) argues that if the negative impact on small firms merely was "unintended" and did not therefore differentially benefit any other interest group (e.g., large firms or environmental activists), then small firms would have lobbied effectively for regulatory change. He suggests that the lack of any corrective congressional or regulatory action is consistent with opposition on the part of benefiting interest groups to any regulatory relief for small firms. The absence of regulatory relief also is consistent with the logic of collective action (Olson 1965).

self-interested and therefore have incentive to use their positions of authority to gain personal benefits in the form of, e.g., income, perks, power, prestige or political support (Peltzman 1976). A standardized, “one-size-fits-all” approach to writing, administering, and enforcing regulations reduces the regulatory workload by limiting regulators’ exercise of discretion, allowing them to avoid making “tough calls”. Rosen (2001, p. 3), in fact, finds evidence supporting the “quiet life” hypothesis for banking regulators, which suggests that they “may want to get by with as little work, and as little career risk, as possible”.

4. Empirical model and results

Title III of the USA Patriot Act of 2001 required all US financial institutions to adopt the same policies and procedures for countering the money laundering activities of criminal organizations and terrorist groups. Viewed from the perspective of a heterogeneous-firm model of regulation, the promulgation and enforcement of such uniform rules are likely to impose differentially heavier compliance-cost burdens on small commercial banks and thrifts than on their larger rivals, especially so if economies of scale exist in regulatory compliance. In this section we present evidence that Title III has in fact redistributed wealth within the financial services industry, transferring it, intentionally or not, from small to large institutions.

4.1. Description of the dataset

We rely on the database of the Federal Deposit Insurance Corporation (FDIC), which reports demographic and financial information on all FDIC-insured US commercial banks and thrifts. The dataset we exploit in the empirical work to follow consists of 1,199

observations from commercial banks and thrifts operating at least 50% of their offices in one of California's two HIFCAs (the Northern and Southern Districts).¹³ In order to test for possible compliance-cost asymmetries flowing from 2001's AML procedures, we compare the periods before (i.e., 1996 through 2001) and after (i.e., 2002 through 2007) the passage of the Patriot Act.

Twenty-one of California's 58 counties are designated as comprising HIFCAs. It is important to emphasize that Patriot Act's AML regulations were imposed on the banking industry as a whole; institutions located beyond the HIFCA boundaries are by no means exempted from these rules. However, disproportionately (and significantly) greater regulatory resources presumably have been allocated to the HIFCA counties, as evident in the language of the Money Laundering and Financial Crimes Strategy Act of 1998 and five subsequent National Money Laundering Strategies (1999 through 2003), all of which state that the areas so identified pose substantial money laundering risks. We concentrate our attention on institutions operating in the two California HIFCAs in order to distinguish between institutions of greater or lesser vulnerability to money laundering and, thus, to estimate differences in compliance costs based solely on institutional size. In this respect, California's HIFCA counties supply the conditions of a controlled, natural experiment.¹⁴

Because it pools observations on individual financial institutions over 12 years, our dataset has both cross-sectional and time-series properties. It cannot be considered to

¹³ We exclude institutions owned by multibank holding companies from the empirical analysis because the affiliates of such institutions are able to share resources and, therefore, the financial statements of individual affiliates may not accurately reflect standalone financial performance (Elliehausen and Lowry 1997).

¹⁴ The designations of the Southern and Northern California HIFCAs (in 2000 and 2001) coincide closely with the passage of the Patriot Act in 2001. In this respect, California represents an ideal setting for observing the effects of the post-9/11 adoption of more stringent AML compliance standards.

be a true panel dataset, however, because observations are missing for some of the institutions throughout the 12-year period. First, as mentioned earlier (see footnote 13), we exclude institutions affiliated with multibank holding companies. Second, we omitted banks for which interstate (non-California) branches accounted for more than 10% of total branches in order to focus on institutions within California located in counties thought to be especially vulnerable to money laundering. Finally, although we include institutions that were established as late as the first quarter of 1999, observations are missing for some of those newer institutions in earlier years (1996, 1997, and 1998).

4.2. Model specifications

We use pooled ordinary least squares (OLS) analysis with robust standard errors to explain variations in three profitability ratios for California’s commercial banks and thrifts – return on assets (ROA), net operating income to assets (NOIA) and return on equity (ROE). We control for institution size, the percentage of branches located within the state’s HICFA counties, de novo status, major institution-specific events, and rural or urban market characteristics in the pre- and post-Patriot Act era.

The regression model has the following general form:

$$\begin{aligned}
 Y = & b_0 + b_1\text{POST} + b_2\text{SCOM} + b_3(\text{POST} \times \text{SCOM}) + b_4\text{LCOM} + b_5 (\text{POST} \times \text{LCOM}) \\
 & + b_6\text{MID} + b_7(\text{POST} \times \text{MID}) + b_8\text{HIFCA}\% + b_9\text{DENOVO} + b_{10}\text{EVENT} \\
 & + b_{11}\text{METRO} + e.
 \end{aligned}$$

The same set of independent variables, all of which are defined in the next section, is entered in all three regression models. Descriptive statistics for all of the variables are shown in Table 1.

4.3. Description of variables and a priori expectations

4.3.1. Dependent variables

The dependent variables ROA, NOIA, and ROE are defined as return on assets, net operating income to assets, and return on equity, respectively. These industry-standard ratios, which have been used widely in evaluating the profitability of commercial banks and thrifts, enable us to investigate the possible effects of the Patriot Act's AML provisions on institutional profitability in four different size strata. The FDIC defines ROA, NOIA, and ROE as the following: ROA equals net income after taxes and extraordinary items (annualized) as a percentage of average total assets. NOIA is the net operating income (annualized) as a percentage of average assets. Finally, ROE is calculated as annualized net income as a percentage of average equity on a consolidated basis (Federal Deposit Insurance Corporation n.d.).

Following the Patriot Act's passage, banking institutions were required to appoint compliance officers (many of them for the first time) by either hiring new employees or filling these positions with existing employees.¹⁵ Owing to the heavier compliance-related workload, many institutions in fact started employing more nonsupervisory personnel (to carry out routine compliance activities, such as performing AML checks, preparing documents, and reporting to regulatory agencies) and more managerial personnel (to coordinate compliance activities, monitor employee compliance, review procedures, establish AML programs, and design auditing schemes).

In order to comply with the new AML measures, banks and thrifts had to invest in expensive hardware and software technologies, modify existing information systems, and

¹⁵ Grebb (2003) reports that some banks have created new units that deal only with Title III-related compliance issues.

update client records. IT maintenance, overhead and supply costs also arguably have increased owing to the Patriot Act's stringent AML requirements.

Title III mandates that financial institutions' AML training programs involve all employees whose duties requiring knowing the new rules and not just be limited to compliance department personnel. In this respect, training employees on the new AML measures has imposed substantial costs on banking institutions. Moreover, the outsourcing of legal, technological, training and other professional assistance in dealing with compliance issues has added another major expense item to the financial statements of commercial banks and thrifts. For these reasons and more, we expect the substantial increase in AML-compliance related expenditures after the Patriot Act to have stressed the financial profitability of banking institutions, particularly smaller, less efficient ones.¹⁶

4.3.2. POST

POST takes a value of 1 for observations from the years 2002–2007, inclusively, and a value of 0 for observations from the pre-Patriot Act years, 1996 through 2001. We expect the financial conditions of all banking institutions, on average, to weaken in the post-Patriot Act period as a result of the higher compliance-cost burden associated with Title III's AML measures. On the other hand, if the burden has fallen disproportionately on a subset of the industry (or if regulation merely transferred wealth within the industry), then one would not observe a significant decline in overall profitability after 2001.¹⁷ As a matter of fact, the lower interest rates that prevailed throughout the early years of the

¹⁶ Newman (2003), "The Hunt for Dirty Money" (2003), Fisher et al. (2005) and "Looking in the Wrong Places – Financing Terrorism" (2005), among others, have drawn similar conclusions.

¹⁷ Bartel and Thomas (1987) argue that a cost-increasing regulation can actually yield net benefits for low-cost firms in the industry, if the positive indirect effects (i.e., gaining competitive advantage over high-cost firms) offset the negative direct effects (i.e., increased operating costs for the entire industry as a whole).

twenty-first century may have enabled commercial banks and thrifts to improve their profitability in spite of higher AML compliance costs (Saunders and Cornett 2008, pp. 44–53). We will let the data speak as to which of these factors dominates in explaining financial performance.

4.3.3. Size stratum variables

The size stratum dummy variables (SCOM, LCOM and MID) denote, respectively, small community banks, large community banks and midsize banks, classified according to total assets.¹⁸ Each takes the value of 1 when the observed institution falls into the appropriate category and 0 otherwise. The omitted base group consists of large banks with total assets exceeding \$5 billion.

Entering these dummy variables enables us to test whether or not compliance with the Patriot Act's AML provisions has had a differential impact on the financial performances of banking institutions of different sizes and, hence, produced an intra-industry wealth transfer. For example, a negative and significant coefficient on $POST \times SCOM$ would be evidence of a relative decline in the profitability of small institutions compared to large banks and thrifts in the post-Patriot Act period, *ceteris paribus*. If so, this result would be consistent with the wealth-redistribution hypothesis. Similar reasoning applies to comparisons between LCOM and $POST \times LCOM$ and between MID and $POST \times MID$.¹⁹

¹⁸ We stratified the institutions into four groups based on total assets. Large commercial banks and thrifts consist of institutions with more than \$5 billion in total assets. Midsize banks and thrifts have total assets in the \$1 billion to \$5 billion range. Large community banks and thrifts are those with total assets between \$250 million and \$1 billion. Lastly, small community banks and thrifts are defined as institutions with total assets amounting less than \$250 million. The CPI deflator was used to convert all class sizes into constant 2007 dollars.

¹⁹ Note that interacting the size stratum variables with POST is equivalent to estimating two separate regression equations, one for the years before the Patriot Act and one for the years afterwards (Wooldridge

4.3.4. HIFCA%

HIFCA% denotes the percentage of branches that a banking institution operates in one of California's 21 HIFCA counties. If regulators have followed a risk-based approach by requiring institutions located in areas thought to be more vulnerable to money laundering activities to adopt more stringent (and more costly) AML measures, then, all else equal, one would expect a negative sign on HIFCA%. Such a finding would suggest that any intra-industry wealth transfer resulting from enforcement of Title III simply is an inevitable consequence of a rational allocation of regulatory resources.

4.3.5. DENOVO

DENOVO is a dummy variable which takes the value of 1 for newly established banks and 0 otherwise. An institution is entered as DENOVO if it issued its first set of financial statements in the same quarter it was established. The de novo institutions in our dataset were founded in the last quarters of 1996, 1997, 1998 or 1999. It is our expectation that de novo banks have lower profitability than otherwise, given that new institutions are likely to incur extraordinary expenses in the first few months of operation that may compromise their financial performances.

4.3.6. EVENT

The dummy variable EVENT takes the value of 1 for institutions undergoing significant organizational changes in a given year and 0 otherwise. Such events include acquiring another bank or banks, major institutional restructuring, switching the identity of its primary regulatory agency, and moving its headquarters to a different county. Our *a*

2000, pp. 412–413). Interacting POST with SCOM, LCOM and MID enables one to estimate the marginal changes in them associated with passage of the Patriot Act.

priori expectation is that banks going through major transitions are more likely to experience financial stress than the ones in the base group, *ceteris paribus*.

4.3.7. METRO

METRO takes the value of 1 when headquarters of the observed institution is located in a metropolitan area and 0 otherwise.²⁰ In their paper on profitability of banking institutions, Hannan and Prager (2006) provide evidence suggesting a decline in the profitability of rural banks as a result of more vigorous competition from geographically diversified, multimarket institutions. In this respect, our *a priori* expectation is that, other things being the same, metropolitan banks are more profitable than non-metropolitan banks.

4.4. Results

OLS regression analysis with robust standard errors generates the results reported in Tables 2, 3, and 4, where we alternately regress our three profitability ratios (i.e., ROA, NOIA and ROE) for banking institutions operating at least half of their offices in California's HIFCA counties on size strata and other control variables.²¹ All of the estimated regression models are statistically significant at the 1% level and explain 17.95%, 17.16%, and 10.91% of the variation in bank profitability.

The coefficients on POST have positive signs in all three models, suggesting that the profitability of California's banks and thrifts improved overall in the period after the Patriot Act. The results indicate that, on average, ROA, NOIA and ROE increased by

²⁰ The Office of Management and Budget defines metropolitan areas as including the counties surrounding central cities (Federal Deposit Insurance Corporation n.d.).

²¹ Thirteen observations were excluded from the sample used in computing the results shown in Table 4 based on exceptionally large values of the dependent variable (ROE). We treated as outliers observations for which ROE was greater than 40 or less than -40 (the sample average for that variable is 10.01).

0.69, 0.70, and 3.02 percentage points (ppt), respectively, in the post-Patriot Act period compared to the pre-Patriot Act period (the first two coefficients are statistically significant at the 1% level, whereas the last one is not).

The negative coefficients on the interactions between the size stratum variables and POST (i.e., POST x SCOM, POST x LCOM and POST x MID) in all estimated models indicate that small community banks, large community banks and midsize banks have experienced declines in profitability compared to institutions in the base group, namely large banks, in the period after the Patriot Act. For example, the coefficient on SCOM in the first model indicates that the ROA of small community banks before the Patriot Act was, on average, 0.34 ppt lower than their larger rivals. Small community banks experienced a further decline of 0.07 ppt in ROA relative to large banks in the post-Patriot Act period, as indicated by the coefficient of POST x SCOM.²² This result shows that, in terms of profitability, small community banks are worse off after the Patriot Act compared to their larger competitors, though there is not enough evidence to conclude that the coefficient is different from zero. It is possible to draw similar inferences about the relationship between small community banks and large banks from the other models where NOIA and ROE are entered as dependent variables, but again the estimated coefficients are not statistically significant.

The findings are considerably more conclusive and statistically significant when we turn to comparisons between large community banks and large banks and between midsize banks and large banks. In the pre-Patriot Act period, the ROAs of large community banks and midsize banks were, on average, 0.35 and 0.71 ppt higher than

²² After the Patriot Act, the ROA for small community banks is, on average, 0.41 ppt ($= -0.3395 + -0.0732$) lower than that of large banks.

those of large banks. On the other hand, the coefficients on POST x LCOM and POST x MID imply that large community banks and midsize banks experienced 0.46 and 0.87 ppt decreases in their ROAs, respectively, relative to large institutions in the period after the Patriot Act.²³ The regression model in which NOIA is the dependent variable yields quite similar results both in terms of the signs and significance of coefficients (other than LCOM, which is not statistically significant at any conventional level of significance). Finally, the last model which estimates ROE has the expected negative signs on POST x LCOM and POST x MID; however, only the latter is significant at the 10% significance level.

The results, particularly those for large community banks and midsize banks, show, consistent with an intra-industry wealth transfer hypothesis, that smaller banking institutions have borne disproportionately higher AML compliance costs and, hence, experienced declines in their profitability compared to large institutions. The estimated regression models suggest that midsize banks saw the largest declines in profitability relative to large banks in the post-Patriot Act period, declines amounting to 0.87 ppt in ROA, 0.89 ppt in NOIA and 5.46 ppt in ROE. (Those results are statistically significant at the 1%, 1%, and 10% levels, respectively.) Large community banks are next in order, exhibiting reduction of 0.46 ppt in ROA, 0.41 ppt in NOIA and 1.1 ppt in ROE. (The first two coefficients are statistically significant at the 5% level, while the last one is not significant.) Small community banks experienced the smallest declines in profitability – of 0.07 ppt in ROA, 0.04 ppt in NOIA and 0.36 ppt in ROE – but none of the coefficients is statistically significant.

²³ The results suggest that large banks, on average, have an ROA that is 0.11 (= 0.3546 + -0.4616) and 0.16 ppt (= 0.7054 + -0.8665) higher than those of large community banks and midsize banks, respectively, in the post-Patriot Act period.

One reason why small banks²⁴ do not seem to bear a disproportionately heavy burden is that operating mostly in tiny communities; serving homogenous customer bases; performing fewer, more uniform and less complex transactions; and maintaining personal customer relationships enables them to adopt less costly policies and procedures for complying with the Patriot Act. Indeed, some experts argue that midsize institutions have experienced the most significant compliance problems because they are too small to invest in expensive AML technologies and too big to run manual checks (“The Hunt for Dirty Money” 2003). Furthermore, small community banks are unlikely to compete directly with the largest banking institutions and, hence, to be less subject to pressure from regulators, whose interests, as our evidence suggests, are more closely aligned with the latter. The pace of financial industry consolidation, which has become more rapid in the post-Patriot Act period, supplies another reason why midsize banks (and large community banks, to a lesser extent) have borne the brunt of the regulatory costs. Those are precisely the institutions that large banks, which have been increasing their shares of the banking industry’s assets, deposits and offices, are more likely to have incentive to acquire in their quest for growth. The deteriorating financial conditions of midsize banks since 2001 make them more attractive acquisition targets for large institutions.²⁵

The negative coefficients on HIFCA% in all three models imply that an institution’s profitability declines as the money laundering risk it carries goes up. For instance, in the estimated regression model where ROA enters as the dependent variable,

²⁴ Based on 659 observations, the small banks in our dataset are very small indeed, having on the average total assets of \$123.9 million.

²⁵ DeYoung and Hunter (2001, p. 1) state that “deregulation and technological change have transformed US commercial banks from an industry dominated by thousands of small, locally focused banks into an industry where a handful of large banks could potentially span the nation and control the majority of its bank deposits.”

the coefficient on HIFCA% indicates that a 1% increase in the number of offices in areas highly vulnerable to money laundering activities results in a 0.001 ppt decline in ROA, *ceteris paribus*. However, the variable does not have much economic significance, given that coefficients in all three models are rather small in magnitude and are not statistically significant.

The estimated regression models indicate that de novo institutions report considerably lower profitability than others, a result consistent with our *a priori* expectation. The ROA, NOIA and ROE of de novo banks are, on average, 7.17, 7.13 and 16.97 ppt, respectively, lower than non-de novo banks, *ceteris paribus*. The coefficients are statistically significant at the 1% level in each model.

EVENT produces an effect that is opposite to the expected relationship, but the estimated coefficient on it is statistically significant only in the model with ROE as the dependent variable. The empirical results indicate that undergoing a major change increases ROA, NOIA and ROE by 0.08, 0.11 and 1.55 ppt, respectively, *ceteris paribus*. Organizational changes, such as “shopping for a regulator”, moving headquarters to a different county, or acquiring another institution, do not necessarily cause financial distress for commercial banks and thrifts and may, in fact, have positive effects on profitability.

Finally, although none of the coefficients is statistically significant, the results from the regression models where ROA and NOIA are entered as the dependant variable suggest that banks operating in metropolitan areas are more profitable than those operating in rural areas (ROA and NOIA are, respectively, 0.03 and 0.06 ppt higher for

the former than for the latter); the ROE model yields the opposite result (ROE is 0.83 ppt lower for city banks).

5. Concluding remarks

At 125 pages, Title III is the longest of the Patriot Act's legislative provisions. The AML requirements promulgated under Title III imposed substantial compliance costs on commercial banks and thrifts. In this study, we develop and estimate an econometric model to test whether or not complying with the 2001 law had asymmetrically impacted the profitability of banking institutions of different sizes.

Using a dataset comprising banking institutions that operate at least half of their branches in California's HIFCA counties, we find evidence indicating that the financial performances of smaller institutions, particularly large community banks and midsize banks, have deteriorated in the post-Patriot Act period. Focusing on banks and thrifts operating half or more of their offices in HIFCA counties enables us to test for differences in the distribution of the AML compliance-cost burden across institutions that are expected to be subject to comparable regulatory enforcement.

Our findings are consistent with a heterogeneous-firm model of regulation, which suggests that imposing uniform, cost-increasing regulations on all firms in an industry may lead to an intra-industry wealth transfer, especially if the members of the industry differ in terms of size, efficiency and other institutional characteristics.

It is possible, of course, that the Patriot Act's regulatory-mediated intra-industry wealth transfer in favor of large institutions is justified to the extent that the law's AML controls are effective in deterring money laundering and other financial crimes. However,

even if one assumes that the new AML measures have been successful in tackling the problem of money laundering (the question whether the new law has been effective or not is beyond the scope of this paper), this rationale is dubious in light of the heterogeneous-firm model of regulation and of the evidence of wealth redistribution presented herein.

Since 2001, among financial institutions that operate at least half their branches in areas of California at high money laundering risk, large commercial banks have become more profitable than midsize and large community banks. Imposition and enforcement of a one-size-fits-all set of anti-money laundering regulations thus seems to have benefitted one subset of California's banking industry at the expense of their competitors. The financial stress created by the costs of complying with Title III of the Patriot Act has, whether intentionally or not, spurred industry consolidation and led to the creation of more institutions that may in the future be deemed "too big to fail".

References

- Altrogge, Phyllis, and Shughart, William F. II. 1984. "The Regressive Nature of Civil Penalties." *International Review of Law and Economics* 4: 55–66.
- Anderson, Gary M., Shughart, William F. II, and Tollison, Robert D. 1988. "A Public Choice Theory of the Great Contraction." *Public Choice* 59: 3–24.
- Bartel, Ann P., and Thomas, Lacy Glenn. 1987. "Predation through Regulation: The Wage and Profit Effects of the Occupational Safety and Health Administration and the Environmental Protection Agency." *Journal of Law and Economics* 30: 239–64.

- Bartel, Ann P., and Thomas, Lacy Glenn. 1985. "Direct and Indirect Effects of Regulation: A New Look at OSHA's Impact." *Journal of Law and Economics* 28: 1–25.
- Biern, Herbert A. 1998. "Anti-Money Laundering Efforts and Related Proposed Legislation." Testimony before the House Committee on Banking and Financial Services, 11 June. Available from <<http://www.federalreserve.gov/boarddocs/testimony/1998/19980611.htm>>; accessed 15 June 2006.
- Buchanan, James M., and Tullock, Gordon. 1975. "Polluters' Profits and Political Response: Direct Controls versus Taxes." *American Economic Review* 65: 139–47.
- Central Intelligence Agency. 2009. "The World Factbook GDP Official Exchange Rate." Available from <<https://www.cia.gov/library/publications/the-world-factbook/fields/2195.html>>; accessed 16 May 2009.
- Charles, Keenan. 2004. "Turning up the Heat." *Community Banker* 13: 52–57.
- Der Hovanesian, Mara, and Fairlamb, David. 2003. "Still Drowning in Dirty Money." *Business Week* 3860 (December): 102–03.
- DeYoung, Robert, and Hunter, William C. 2001. "Deregulation, the Internet, and the Competitive Viability of Large Banks and Community Banks." *Federal Reserve Bank of Chicago Working Paper Series* WP-2001-11: 1–37.
- Dolar, Burak. 2007. "The Anti-Money Laundering Provisions of the USA Patriot Act: A Heterogeneous Firm Model of the Banking Industry." Unpublished Ph.D. dissertation. University, MS: University of Mississippi.

- Dolar, Burak, and Shughart, William F. II. 2007. "The Wealth Effects of the USA Patriot Act: Evidence from the Banking and Thrift Industries." *Journal of Money Laundering Control* 10: 300–17.
- Ekelund, Robert B., Jr., and Tollison, Robert D. 2001. "The Interest-Group Theory of Government." In Shughart, William F. II, and Razzolini, Laura (Eds.), *The Elgar Companion to Public Choice*, 357–78. Northampton: Edward Elgar Publishing, Inc.
- Ekelund, Robert B., Jr., McDonald, Michael J., and Tollison, Robert D. 1995. "Business Restraints and the Clayton Act of 1914: Public- or Private-Interest Legislation?" In McChesney, Fred S., and Shughart, William F. II (Eds.), *The Causes and Consequences of Antitrust: The Public Choice Perspective*, 271–86. Chicago: University of Chicago Press.
- Ellehausen, Gregory. 1998. "The Cost of Banking Regulation: A Review of the Evidence." *Federal Reserve System Staff Studies* 171: 1–35.
- Ellehausen, Gregory E., and Lowrey, Barbara R. 1997. "The Cost of Implementing Consumer Financial Regulations: An Analysis of Experience with the Truth in Savings." *Federal Reserve System Staff Studies* 170: 1–17.
- Federal Deposit Insurance Corporation. "Institution Directory Help." 18 January. Available from <<http://www2.fdic.gov/idasp/main.asp>>; accessed 15 June 2006.
- Fisher, J., Gilsinan, J., Harshman, E., Islam, M., and Yeager, F. 2005. "Assessing the Impact of the USA Patriot Act on the Financial Services Industry." *Journal of Money Laundering Control* 8: 243–251.

- Grebb, Michael. 2003. "Struggling with the Most Vital Information." *US Banker* (April): 26–30.
- Hannan, Timothy A. and Prager, Robin A. 2006. "The Profitability of Small, Single-Market Banks In an Era of Multimarket Banking." *Board of Governors of the Federal Reserve System Finance and Economics Discussion Series* 41: 1–28.
- Hetzer, Wolfgang. 2003. "Money Laundering and Financial Markets." *European Journal of Crime, Criminal Law and Criminal Justice* 11/3: 264–77.
- Hinterseer, Kris. 1997. "An Economic Analysis of Money Laundering." *Journal of Money Laundering Control* 1: 154–64.
- Hovenkamp, Herbert. 2005. *The Antitrust Enterprise: Principle and Execution*. Cambridge and London: Harvard University Press.
- "The Hunt for Dirty Money." 2003. *Economist* (6 September): 368.
- Linneman, Peter. 1980. "The Effects of Consumer Safety Standards: The 1973 Mattress Flammability Standard." *Journal of Law and Economics* 23: 461–79.
- "Looking in the Wrong Places – Financing Terrorism." 2005. *Economist* (22 October): 378.
- Maloney, Michael T., and McCormick, Robert E. 1982. "A Positive Theory of Environmental Quality Regulation." *Journal of Law and Economics* 25: 99–124.
- Marvel, Howard P. 1977. "Factory Regulation: A Reinterpretation of Early English Experience." *Journal of Law and Economics* 20: 379–402.
- McCormick, Robert E., and Tollison, Robert D. 1981. *Politicians, Legislation, and the Economy: An Inquiry into the Interest Group Theory of Government*. Boston: Martinus Nijhoff.

- The Money Laundering and Financial Crimes Strategy Act of 1998. Publ. L. 105–310. 30 Oct. 1998. Stat. 112 (1998).
- “The Needle in the Haystack.” 2002. *Economist* (14 December): 365.
- Neumann, George R., and Nelson, Jon P. 1982. Safety Regulation and Firm Size: Effects of the Coal Mine Health and Safety Act of 1968.” *Journal of Law and Economics* 25: 183–99.
- Newman, Richard. 2003. “Wayne, N.J. Based Bank on Track.” *The Record* (2 October).
- Olson, Mancur 1965. *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge: Harvard University Press.
- Pashigian, Peter B. 1984. “The Effect of Environmental Regulation on Optimal Plant Size and Factor Shares.” *Journal of Law and Economics* 27: 1–28.
- Peltzman, Sam. 1976. “Toward a More General Theory of Regulation.” *Journal of Law and Economics* 23: 209–40.
- Preston, Ethan. 2002. “The USA Patriot Act: New Adventures in American Extraterritoriality.” *Journal of Financial Crime* 10: 104–16.
- Roberts, Megan. 2004. “Big Brother Isn’t Just Watching You, He’s also Wasting Your Tax Payer Dollars: An Analysis of the Anti-Money Laundering Provisions of the USA Patriot Act.” *Rutgers Law Review* 56: 573–602.
- Rosen, Richard J. 2001. “Do Regulators Search for the Quiet Life? The Relationship Between Regulators and the Regulated in Banking.” *Federal Bank of Chicago Working Paper Series* WP-20001-05: 1–32.

- Saunders, Anthony, and Cornett, Marcia Millon. 2008. *Financial Institutions Management: A Risk Management Approach*. New York, NY: McGraw-Hill Companies, Inc.
- Schroeder, Frederick J. 1985. "Compliance Costs and Consumer Benefits of the Electronic Fund Transfer Act: Recent Survey Evidence." *Board of Governors of the Federal Reserve System Staff Studies* 143: 1–22.
- Small, Richard H. 1999. "The Proposed Know Your Customer Regulation." Testimony before the House Subcommittee on Commercial and Administrative Law, and the Committee on the Judiciary, 4 March. Available from <<http://www.federalreserve.gov/boarddocs/testimony/1999/19990304.htm>>; accessed 16 June 2006.
- Stigler, George J. 1971. "The Theory of Economic Regulation." *Bell Journal of Economics and Management Science* 2: 3–21.
- Tollison, Robert D. 1991. "Regulation and Interest Groups." In High, Jack C. (Ed.), *Regulation: Economic Theory and History*, 59–76. Ann Arbor: University of Michigan Press.
- United Nations International Drug Control Program. 1997. "Money Laundering." *World Drug Report*, 136–142. New York: Oxford University Press.
- US Department of the Treasury and US Department of Justice. 2001. "The 2001 National Money Laundering Strategy." September. Available from <<http://treas.gov/press/releases/docs/ml2001.pdf>>; accessed 15 June 2007.
- US Department of the Treasury and US Department of Justice. 2000. "The National Money Laundering Strategy for 2000." March. Available from

<<http://www.ustreas.gov/press/releases/docs/ml2000.pdf>>; accessed 15 June 2007.

Williamson, Oliver E. 1968. "Wage Rates as a Barrier to Entry: The Pennington Case in Perspective." *Quarterly Journal of Economics* 82: 85–116.

Wooldridge, Jeffrey, M. 2000. *Introductory Econometrics: A Modern Approach*. Mason, OH: South-Western College Publishing.

Table 1. Descriptive statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
ROA	0.9048	1.4057	-13.0315	6.4874
NOIA	0.8596	1.4255	-13.0315	6.4874
ROE ^a	10.1851	9.8564	-39.7262	39.5641
POST	0.5054	0.5002	0	1
SCOM	0.5496	0.4977	0	1
LCOM	0.2919	0.4548	0	1
MID	0.1354	0.3429	0	1
HIFCA%	93.4354	14.3855	50	100
DENOVO	0.0033	0.0577	0	1
EVENT	0.0384	0.1922	0	1
METRO	0.8540	0.3532	0	1

^a Omitting 13 outliers (see footnote 21).

Table 2. Regression results with ROA as the dependent variable:

Variable	Coefficient	t-statistic	p-value
Intercept	0.8037	2.78	0.005
POST	0.6915	3.91	<0.001
SCOM	-0.3395	-1.86	0.063
POST x SCOM	-0.0732	-0.35	0.727
LCOM	0.3546	2.05	0.040
POST x LCOM	-0.4616	-2.28	0.023
MID	0.7054	4.30	<0.001
POST x MID	-0.8665	-4.28	<0.001
HIFCA%	-0.0010	-0.46	0.645
DENOVO	-7.1739	-4.06	<0.001
EVENT	0.0758	1.01	0.313
METRO	0.0308	0.32	0.749
N	1,199		
R ²	0.1795		
F-statistic	13.95		
p-value	<0.001		

Table 3. Regression results with NOIA as the dependent variable:

Variable	Coefficient	t-statistic	p-value
Intercept	0.7397	2.37	0.018
POST	0.6972	3.97	<0.001
SCOM	-0.3595	-2.01	0.045
POST x SCOM	-0.0400	-0.19	0.848
LCOM	0.2541	1.48	0.138
POST x LCOM	-0.4131	-2.03	0.043
MID	0.6793	4.19	<0.001
POST x MID	-0.8866	-4.35	<0.001
HIFCA%	-0.0008	-0.33	0.744
DENOVO	-7.1324	-4.04	<0.001
EVENT	0.1103	1.42	0.155
METRO	0.0585	0.58	0.564
N	1,199		
R ²	0.1716		
F-statistic	13.00		
p-value	<0.001		

Table 4. Regression results with ROE as the dependent variable:

Variable	Coefficient	t-statistic	p-value
Intercept	13.9227	4.38	<0.001
POST	3.0231	1.12	0.264
SCOM	-5.6513	-2.30	0.022
POST x SCOM	-0.3565	-0.13	0.900
LCOM	-0.9370	-0.38	0.707
POST x LCOM	-1.1005	-0.39	0.700
MID	2.9468	1.19	0.234
POST x MID	-5.4573	-1.87	0.061
HIFCA%	-0.0091	-0.47	0.638
DENOVO	-16.9672	-6.15	<0.001
EVENT	1.5493	1.75	0.081
METRO	-0.8288	-1.19	0.234
N	1,186		
R ²	0.1091		
F-statistic	19.45		
p-value	<0.001		