

# **Enforcement of the USA Patriot Act's Anti-Money Laundering Provisions: Have Regulators Followed a Risk-Based Approach?\***

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## **Abstract**

The USA Patriot Act represents one of the most significant pieces of legislation in the banking industry's recent history. The law's anti-money laundering (AML) provisions imposed stringent regulatory controls on commercial banks and thrifts, and strengthened enforcement efforts in that industry. In this paper, we test whether or not banking regulators have followed a risk-based approach by focusing their resources on institutions located in jurisdictions thought to be especially vulnerable to money laundering activities. In order to do so, we compare the financial performances of banking institutions operating branches inside and outside the boundaries of counties in the State of California designated as "high-risk money laundering and related financial crime areas". Our results indicate that regulatory enforcement under the Patriot Act cannot be explained on the basis of financial institutions' relative risks of being targeted by money launderers.

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

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# **Enforcement of the USA Patriot Act's Anti-Money Laundering Provisions: Have Regulators Followed a Risk-Based Approach?**

## **1. Introduction**

Money laundering is defined 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” (United Nations International Drug Control Program 1997). Money laundering poses a significant threat to the integrity and sound functioning of any financial system. One contaminated by funds generated by criminal activity loses its credibility and compromises its profitability insofar as it becomes more difficult to attract and maintain legitimate depositor accounts. According to International Money Fund estimates, the volume of money laundered internationally ranges between \$1,245 billion and \$3,113 billion annually, sums representing from two percent to five percent of world GDP based on 2008 Central Intelligence Agency data.<sup>1</sup> The United States experiences the highest level of money laundering activity of any single country. It is estimated that half of the world’s money laundering activity takes place in the US financial system as a whole, with almost half of it laundered through US banks (Charles 2004).

The history of US anti-money laundering (AML) legislation starts with the passage of the 1970 Bank Secrecy Act (BSA), which was enacted in response to then-growing concerns about the vulnerability of financial institutions to organized criminal enterprises, especially those engaged in narcotics trafficking. Worries regarding the mounting volume, scope, and complexity of money laundering activity led, in the 1980s and 1990s, to the passage of another six AML regulations. The terrorist attacks of

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<sup>1</sup> By way of comparison, the combined GDPs of Canada and India, the world’s 11th and 12th largest economies, respectively, amounted to \$2,801 billion in 2008 (Central Intelligence Agency 2009).

September 11, 2001, and the USA Patriot Act of 2001, the legislative response to those attacks, triggered dramatic changes in the fight against money laundering in the United States as well as the rest of the world.

Title III of the Patriot Act, also known as the International Money Laundering Abatement and Financial Anti-Terrorism Act of 2001, strengthened existing AML regulations significantly. The 2001 law expanded the focus of money laundering to include terrorist financing, enlarged the number of financial and non-financial institutions subject to AML measures, and introduced new requirements that not only are national but international in their scope and application.

Commercial banks face the most stringent requirements under 2001's AML mandates (Mandell 2003). The Patriot Act has imposed considerable compliance costs on the entire banking industry, which are the direct and most visible effects of the law. Equally important, but less discernible "indirect effects" of the Patriot Act may arise from uneven enforcement of the new AML rules. In this study, we seek evidence of compliance-cost asymmetries resulting from the enforcement of the Patriot Act's AML provisions and test whether or not such asymmetries can be explained by differences in financial institutions' exposures to money-laundering risk.<sup>2</sup> In order to do so, we examine the effects of the Patriot Act on a number of performance indicators (i.e., return on assets, total assets per employee, and the ratio of non-interest expenses to net income) of commercial banks, savings and loan associations, and savings banks (the latter two are also called "thrifts") operating in the State of California.

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<sup>2</sup> According to Bartel and Thomas (1985), enforcement asymmetries exist when regulations are enforced more stringently on a subset of firms in an industry.

We use a dataset derived from banking institutions in California because the designation of “high-risk money laundering and related financial crime areas” (HIFCAs) there supplies the basis for a natural experiment. Comparing the performances of banks operating branches in California’s HIFCA counties, where AML enforcement is expected to be more stringent due to greater perceived money-laundering risks, with those operating branches in non-HIFCA counties, enables us to test whether regulatory agencies have followed a risk-based approach in designing and supervising the Patriot Act’s regulatory controls. The HIFCAs were first conceived in the Money Laundering and Financial Crimes Strategy Act of 1998, which called for the designation of “high-risk areas” in which money laundering and related financial crimes were thought to be likely. One of the main objectives of the HIFCA designations is to concentrate AML law enforcement resources in regions at greatest risk (US Department of the Treasury and US Department of Justice 2000). The State of California is home to two HIFCAs. The National Money Laundering Strategy for 2000 designated seven counties in the Southern California District as areas at high-risk to money laundering and related financial crimes. The following year’s AML strategy created the Northern California District, which includes another 14 counties.

Our empirical results do not lend support to the hypothesis of a risk-based approach to regulation. The asymmetrical compliance-cost burdens associated with the enforcement of the Patriot Act’s AML provisions cannot be explained on the basis of the differential money-laundering risks posed by financial institutions located in the two California HIFCAs. Interestingly, holding other factors constant, we find that the financial performances of institutions identified as being more vulnerable to money

laundering have improved in the post-Patriot Act period relative to the institutions considered less vulnerable.

## **2. The effects of asymmetrical enforcement of regulation**

Several theories have been developed to explain the purposes and effects of economic regulation, but the public-interest theory and the interest-group (or private-interest) theory are the main rivals. The public-interest theory argues that regulation responds to the public's demand for governmental intervention to correct market failures, which arise in situations of positive externalities, negative externalities, imperfect or asymmetrical information and monopoly. Theoretical and empirical studies have found, however, that the actual effects of regulation rarely correspond to its stated purposes. Possibly owing to its normative nature, the public-interest theory focuses on the benefits of regulation and downplays its social costs or "unintended" consequences. Public-interest theorists attribute the redistributive effects of regulatory enforcement to the unintended consequences of well-meaning, but fallible regulators and do not weigh heavily the possible competitive advantages (or disadvantages) that regulation may confer on certain subgroups of industry or society.

The interest-group theory, by contrast, holds that regulation responds to the demands of special-interest groups that compete with one another and that aim to maximize the well-being of their members rather than that of the public at large (Posner 1974). According to George Stigler (1971, pp. 3–4), who was the first economist to develop a formal and testable interest-group theory of government, "regulation is acquired by the industry and is designed and operated primarily for its benefit". Sam

Peltzman (1976) extended Stigler's "capture" theory and in the process laid out a more general framework for predicting the origins and redistributive consequences of economic regulation.<sup>3</sup> Peltzman argues that the regulator's objective of maximizing his or her chances of appointment or reappointment to office turns on the tradeoff between the essentially incompatible interests of two groups, namely producers and consumers, political support from both of which, except in extreme cases where one group is politically impotent, is essential to keeping the regulator in office.

But producer groups are not monolithic – and they do not act as would an organic entity.<sup>4</sup> Firms within an industry often have competing interests in the regulatory process. The heterogeneous-firm model of regulation formulated by Buchanan and Tullock (1975) explains how a subset of firms in an industry has incentive to seek advantages over their competitors through the regulatory process.

Existing evidence supporting the heterogeneous-firm model of regulation, which is derived from the interest-group theory, is diverse, yet not very comprehensive. Bartel and Thomas (1985), for example, examined the impact of the workplace regulations promulgated by the Occupational Safety and Health Administration (OSHA). They divide the effects of regulation into two categories. One of the categories considers the direct effects of regulation, which increase the operating costs of all of an industry's members. The other category, which includes the indirect effects of regulation, stems from two possible sources, namely regulatory-mediated asymmetries in compliance costs and law enforcement effort. Asymmetrical compliance-cost burdens potentially are created whenever a "one-size-fits-all" regulatory regime is imposed on an industry and a

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<sup>3</sup> Among other things, Peltzman's model explains why regulation is more likely to be imposed on industries that otherwise are either monopolistic or perfectly competitive, but not oligopolistic.

<sup>4</sup> Nor are the interests of consumers, of course, but such heterogeneity has not been as much explored.

differentially heavier burden falls on a subset of the firms within it. In such cases, regulation systematically (and without any plausible justification) skews the costs of compliance in favor of one subset of firms. The operation of such a regulatory regime creates winners and losers by orchestrating intra-industry redistributions of wealth. Bartel and Thomas's (1985) findings suggest OSHA regulations were more intensively enforced against small firms and those employing non-union workforces, thereby benefitting their larger, unionized rivals.

In a subsequent study, Bartel and Thomas (1987) test for regional enforcement asymmetries in the regulations of OSHA and the Environmental Protection Agency. They provide evidence suggesting that these regulations were more stringently enforced on smaller, more efficient firms located in the Sun Belt than on larger, less efficient firms in the Frost Belt. Bartel and Thomas conclude that "regulation has become a predatory device that indeed is utilized to enhance the wealth of predators and to reduce the wealth of rivals."

In his article on Lord Althorp's Factory Act of 1833, Marvel (1977) challenges the conventional belief that the law was devised to protect the interests of "exploited" women and children laborers. He argues that the actual legislative motive was to promote the interests of the owners of steam-powered textile mills at the expense of their water-powered competitors, which depended more heavily on female and child labor. Marvel also provides evidence suggesting that the 1833 law was enforced unevenly. Attempts to force compliance with the Factory Act remained desultory in Scotland, where water-powered textile manufacturers were relatively more important to the local economy. On

the other hand, law enforcement in England, where steam power dominated, was considerably more vigorous.

The heterogeneous-firm model of regulation underlies our examination of the effects of the AML provisions of the USA Patriot Act. From a public-interest theory perspective, one would expect banking institutions that operate branches in one of California's 21 HIFCA counties to face more stringent AML enforcement (and, hence, bear a disproportionately higher compliance-cost burden) than institutions located outside of those high-risk areas. If banks in HIFCA counties are in fact more vulnerable to money-laundering, one would hypothesize a relative decline in their financial performances in the post-Patriot Act period as regulators focused their law enforcement activities there and required such institutions to undertake greater (and more costly) efforts to identify and prevent unlawful transactions. Such a compliance-cost asymmetry plausibly can be justified on the grounds of public-interest, provided that it is an inevitable byproduct of banking regulators following a risk-based approach in implementing the new AML measures. Indeed, in his speech before Women in Housing and Finance, a Washington-based organization, William J. Fox, the former director of Financial Crimes Enforcement Network (FinCEN), said that the Patriot Act's AML regulatory regime is risk-based rather than rule-based.<sup>5</sup> He also stated that "compliance must be risk-based in order to fairly and effectively regulate the panorama of industries represented under the BSA umbrella" (Financial Crimes Enforcement Network 2004).

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<sup>5</sup> The FinCEN is the regulatory agency responsible for administering the Bank Secrecy Act (BSA) of 1970, which constitutes the backbone of AML legislation in the United States. As mentioned earlier, in amending the BSA, Title III of the USA Patriot Act broadened the law's scope (Financial Crimes Enforcement Network n.d.).

### **3. Title III's AML provisions and regulatory HIFCA designations**

Title III of the Patriot Act, one of 9/11's enduring legacies, has, for the purpose of combating money laundering and terrorist funding, both strengthened existing AML legislation and introduced new regulatory rules. 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 new regulations have raised financial institutions' costs of complying with AML requirements substantially. Estimates of money spent on AML controls by US financial institutions nationwide amount to about \$10 billion annually.<sup>6</sup>

One of the most likely sources of enforcement asymmetries associated with the Patriot Act relates to the designation of HIFCAs. A list of factors that must be considered in identifying a geographic area as "high-risk" is contained in the Money Laundering and Financial Crimes Strategy Act of 1998. The chief criterion requires an assessment of the level of money laundering risk and vulnerability the area represents. Other factors include area population; the number of financial transactions in the area; whether the area is a transportation hub or center of banking and commerce; the volume of Suspicious Activity

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<sup>6</sup> See, e.g., Der Hovanesian and Fairlamb (2003), Roberts (2004), and "Looking in the Wrong Places-Financing Terrorism" (2005).

Reports (SARs) and Currency Transaction Reports (CTRs) originating in the area; unusual patterns in money laundering activity, economic indicators, cash transaction volume, and financial transactions in the area; and whether financial crimes in the area have contagious effects elsewhere (Money Laundering and Financial Crimes Strategy Act, subchapter III, § 5342).

Currently, seven HIFCAs have been designated in the United States and its territories. HIFCA designations were announced for New York/New Jersey, the Southern California District, the Southwest Border and Puerto Rico in March 2000. The Illinois Northern District and the Northern California District were identified as HIFCAs in September 2001.<sup>7</sup> Finally, in 2003, the South Florida HIFCA was created. The regulatory rationale for singling out these areas for HIFCA status was evidence that financial institutions in those locations were especially vulnerable to the operation of major, highly complex and large-scale money laundering organizations. Relevant federal, state, and local AML agencies muster under HIFCA Task Forces in order to focus their enforcement efforts against organized financial crimes in their respective areas (US Department of the Treasury and US Department of Justice 2001).

Although the Patriot Act has strengthened AML enforcement throughout the banking industry, it would be expected that compliance costs have increased disproportionately in the HIFCAs, where money laundering is thought to pose a greater threat. In this study, we focus our attention on the two HIFCAs in California to test whether or not a risk-based approach has been used by regulators to enforce Title III of

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<sup>7</sup>The fact that both of California's HIFCAs were designated prior to the Patriot Act's passage in October 2001 indicates that institutional vulnerability to money laundering already was a concern there.

the Patriot Act.<sup>8</sup> The main reason why we focus on California's HIFCAs rather than the five other areas designated as high-risk is that HIFCA and non-HIFCA counties are more equally distributed there. In Illinois's Northern District and South Florida's HIFCAs, by way of contrast, few counties are designated as HIFCAs (six out of 102 and eight out of 67 counties, respectively), significantly reducing the number of observations in the experimental or treatment group.<sup>9</sup> Similarly, the New York/New Jersey HIFCA and the State of Arizona's share of the Southwest Border HIFCA include all of the counties in these three states, thereby precluding a test of possible intrastate compliance-cost asymmetries. The same reasoning applies to the Puerto Rico HIFCA, which includes the entire territory. Figure 1 shows the seven HIFCA regions.

#### **4. Empirical model and results**

##### **4.1. Description of the dataset**

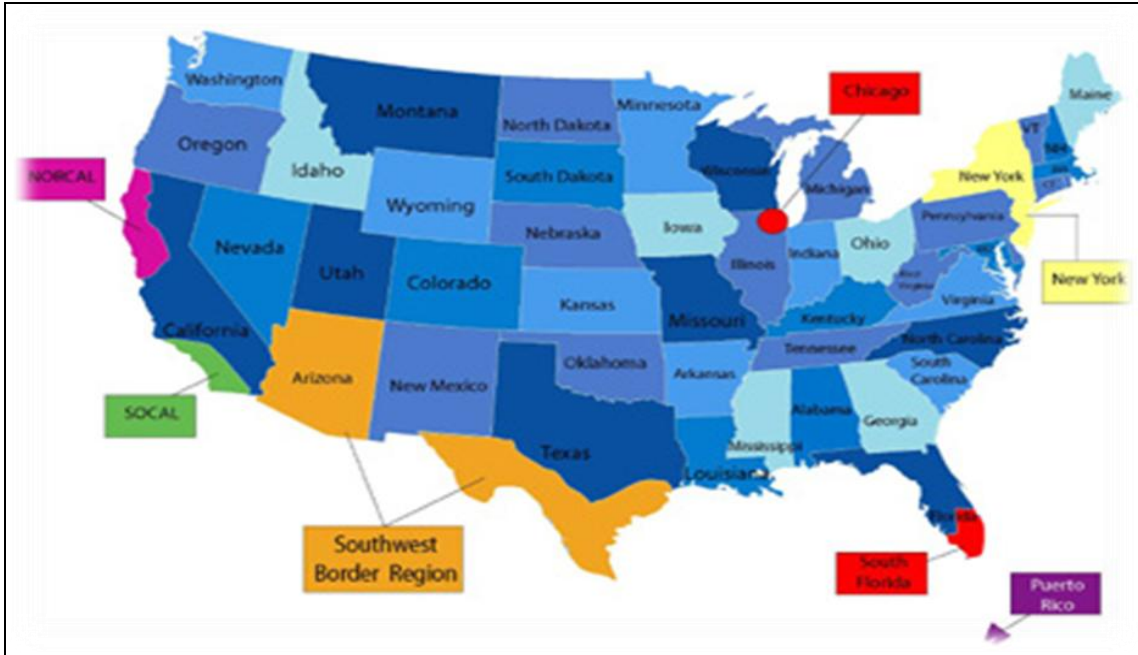
We gathered information from the database of the Federal Deposit Insurance Corporation (FDIC). The database contains demographic and financial information on all FDIC-insured US commercial banks and thrifts. Our final sample contains 1,647 annual observations on institutions headquartered in California and covers the period from 1996 to 2007, inclusively.<sup>10</sup>

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<sup>8</sup> Twenty-one of California's 58 counties are designated as HIFCAs. The Northern California District consists of the counties of Alameda, Contra Costa, Del Norte, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Cruz and Sonoma. The counties of Los Angeles, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara and Ventura are included in the Southern District.

<sup>9</sup> The number of HIFCA counties was even smaller in both regions before the recent additions.

<sup>10</sup> The dataset has both cross-sectional and time-series aspects since it pools observations on individual institutions over 12 years. However, the sample cannot be considered as a true panel dataset because observations are missing for some of the institutions throughout the 12-year sample period. Missing observations were encountered for the following reasons: First, periods during which an institution operated under a multi-bank holding company were excluded. Second, banks whose interstate offices accounted for more than 10% of their total offices are not included in the dataset because our primary objective is to focus on high-risk money laundering areas. Finally, we included institutions which were



Source: Financial Crimes Enforcement Network (n.d.).

**Figure 1 HIFCA Regional Map**

The dataset includes both independent banks (i.e., banks not affiliated with a bank holding company) and banks owned by a one-bank holding company (i.e., a holding company that owns only one bank), while it excludes institutions owned by multibank holding companies.<sup>11</sup> Since banks operating under the same multibank holding company are likely to share resources, isolating the actual financial performance of an affiliated institution from its parent becomes problematic.<sup>12</sup> Excluding observations on institutions operating under the umbrella of a multibank bank holding company thus is likely to improve the accuracy of our empirical estimates.

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established as late as the first quarter of 1999, which means that for some institutions we have no observations for 1996, 1997 or 1998.

<sup>11</sup> We excluded 204 such observations. Of these, 76 institutions were owned by holding companies headquartered in California; the remaining institutions were owned by holding companies headquartered in other states.

<sup>12</sup> For evidence suggesting that institutions owned by multibank holding companies may be able to share compliance-related costs with other affiliated banks, see Elliehausen and Lowry (1997).

Two of the seven HIFCAs in the United States are located in California. California's commercial banking and thrift industry therefore provides an ideal setting for testing possible law enforcement asymmetries under Title III's AML mandates. As mentioned earlier, the AML measures of 2001 imposed a considerable compliance-cost burden on all banking institutions independent of their location within a HIFCA. However, as stated in the Money Laundering and Financial Crimes Strategy Act as well as the National Money Laundering Strategies, it would be expected that a disproportionately heavy compliance-cost burden has been imposed on institutions having offices in those HIFCA counties where money laundering and related financial crimes are thought to pose more serious threats. In this respect, comparing the financial performances of institutions operating branches either within or beyond the boundaries of California's HIFCAs in the pre- and post-Patriot Act periods enables us to ask whether evidence exists that the enforcement of the new AML procedures has generated intra-industry wealth transfers and to test whether regulators and law enforcers have followed a risk-based approach that plausibly would justify such redistribution.

#### **4.2. Model specifications**

In order to assess possible asymmetrical compliance-cost burdens associated with the Patriot Act, we regress, using pooled ordinary least squares (OLS) analysis with robust standard errors, three financial performance ratios, namely return on assets (ROA), total assets per employee (APE), and non-interest expenses to net income (NIENI), of commercial banks and thrifts on a dummy variable indicating whether or not all of an institution's branches are located in one of the HIFCA counties in California. The model includes additional independent variables, such as institution size, type and structure, de

novo status, and major institution-specific events, all of which control for other factors affecting the financial conditions of banking institutions. All dollar amounts are converted to constant 2007 dollars using the Consumer Price Index (CPI) deflator.

The regression model to be estimated is of the following general form:

$$Y = b_0 + b_1\text{POST} + b_2\text{HIFCAOFF} + b_3(\text{POST} \times \text{HIFCAOFF}) + b_4\text{ASSET} + b_5\text{BANK} + b_6\text{DENOVO} + b_7\text{EVENT} + b_8\text{INDEPENDENT} + e.$$

All of the independent variables listed above, which are defined and discussed in the next section, are entered in estimating their exogenous effects on three different dependent variables (i.e., ROA, APE and NIENI). Descriptive statistics for all variables are provided in Table 1.

### **4.3. Description of variables and a priori expectations**

#### **4.3.1. Dependent variables**

The dependent variables ROA, APE, and NIENI are defined as return on assets, assets per employee, and the ratio of non-interest expense to net income, respectively. These dependent variables enable us to investigate the possible effects of the Patriot Act's AML provisions on the profitability and operational efficiency of commercial banks and thrifts.<sup>13</sup>

Following passage of the Patriot Act, banking institutions were required to appoint compliance officers (many of them for the first time) either by hiring new

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<sup>13</sup> These industry-standard ratios are used widely in evaluating the financial performances of banking institutions. ROA is a common profitability indicator, while APE and NIENI measure operational efficiency. The FDIC defines ROA, APE, and NIENI as follows: ROA is calculated as net income after taxes and extraordinary items (annualized) as a percentage of average total assets. APE is total assets in millions of dollars as a percentage of the number of full-time equivalent employees. Finally, NIENI is defined as non-interest expense, less amortization charges for intangible assets, computed relative to the sum of net interest income and non-interest income (Federal Deposit Insurance Corporation n.d.).

employees or filling these positions with existing employees.<sup>14</sup> In consequence of the heavier compliance-related workload after 2001, many institutions started employing more personnel, both nonsupervisory (to carry out routine compliance activities, such as performing AML checks, preparing documents and reporting to regulatory agencies) and supervisory (to coordinate compliance activities, monitor employee compliance, review procedures, establish AML programs and design auditing schemes).

In order to fulfill the Patriot Act's AML mandates, banks and thrifts had to invest in expensive hardware and software technologies, modify existing information systems, and update client records. IT maintenance, overhead, and supply costs arguably also increased as a result of the law's stringent AML requirements.

The Patriot Act mandates that AML training programs must involve not only compliance personnel but all employees whose duties require knowing the new rules. Moreover, the outsourcing of legal, technological, training, and other activities related to compliance issues has added a major expense item to institutions in the banking industry. In this respect, we expect the dramatic increase in compliance-related costs to have a negative impact on the profitability and efficiency ratios of banking institutions, especially the ones in HIFCA counties, which have been subject to stricter AML enforcement after the Patriot Act.<sup>15</sup>

#### 4.3.2. POST

POST takes the value of 1 for observations from 2002 through 2007, inclusively, and the value of 0 for 1996 through 2001, years preceding the Patriot Act's passage. Interacting

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<sup>14</sup> Grebb (2003) reports that some banks have created new units that deal only with Title III-related compliance issues.

<sup>15</sup> Newman (2003), "The Hunt for Dirty Money" (2003), Fisher et al. (2005), and "Looking in the Wrong Places – Financing Terrorism" (2005) are among those who have drawn similar conclusions.

POST with HIFCAOFF enables us to estimate the marginal change in the latter variable associated with the Patriot Act. A heavier burden of complying with the new AML measures, on average, would be expected to weaken the financial conditions of California's HIFCA banking institutions in the post-Patriot Act period, *ceteris paribus*. On the other hand, after the mild recession of 2001, the US banking industry posted record earnings for five consecutive years, which has been attributed to lower interest rates throughout the period (Federal Deposit Insurance Corporation 2006).<sup>16</sup> It is therefore an empirical question whether or not the industry-wide increase in institutional financial performance in the period after the Patriot Act outweighs any negative impacts associated with higher AML compliance costs.

#### 4.3.3. HIFCAOFF

The dummy variable HIFCAOFF takes the value of 1 when all of an institution's branches are located in one of California's HIFCA counties and 0 otherwise. HIFCAOFF is included to test, first, the existence of differential compliance costs and, secondly, provided that such asymmetries exist, whether they can be attributed to a risk-based approach followed in administering the new AML regulations. A public-interest theory would predict that, in the post Patriot Act period, institutions operating all of their offices in one of California's HIFCAs experienced lower profitability and operational efficiency compared to their competitors which are not, on the assumption that more regulatory and enforcement resources have been concentrated on high-risk money laundering areas (thus, leading to higher compliance costs for the former than the latter).

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<sup>16</sup> Based on the FDIC statistics on the banking industry, the average return on assets for all FDIC-insured commercial banks and thrifts was 1.22% for the period from 2002 to 2007, inclusively, compared to an average of 1.16% over the period from 1996 to 2001. The same trend is observed for California banks, whose average return on assets was 1.04% and 1.17% for the pre- and post-Patriot Act periods, respectively.

#### 4.3.4. ASSET

ASSET denotes the total assets of a bank and is entered (in natural logarithms) to control for institutional size. If one assumes that larger institutions are more profitable and operationally more efficient than their smaller competitors, *ceteris paribus*, then the coefficient on ASSET would be expected to be greater than zero in the models where ROA and APE are entered as dependent variables, and less than zero in the model with NIENI as the variable to be explained.

Critchfield et al. (2004) compare the performances of banking institutions of different sizes measured by total assets for the period from 1985 through 2003. The average returns on assets were 1.17%, 1.31%, and 1.13% for the largest 25 banks, midsize banks, and community banks (institutions with total assets less than \$1 billion), respectively, over the eight-year period running from 1996 to 2003. In addition, a number of studies, including Berger and Mester (1997), DeYoung and Hunter (2001), and Pilloff (2001), supply evidence of substantial economies of scale in the banking industry.

#### 4.3.5. BANK

BANK is entered as a dummy variable that controls for institutional type. It takes the value of 1 when the observed institution is a commercial bank and 0 if it is a savings bank or thrift. According to a 2007 report published by the US Government Accounting Office (2007), commercial banks generally are more profitable than thrifts. One possible explanation for this differential profitability is that the former offer a wider array of financial services than the latter. Furthermore, unlike thrifts, which tend to focus on consumer rather than business accounts and loans, commercial banks usually serve both markets (Pilloff and Prager 1998). In this respect, the coefficient on BANK in the model

with ROA as the independent variable would be expected to be greater than zero, *ceteris paribus*. One would also predict a positive relationship between profitability and financial efficiency, but we will let the data speak.

#### 4.3.6. DENOVO

DENOVO is a dummy variable that takes the value of 1 for new institutions issuing quarterly financial statements for the first time.<sup>17</sup> The base group includes institutions not in that category. *Ceteris paribus*, we expect de novo institutions to exhibit weaker financial performances than their counterparts in the base group on the assumption that newly established institutions are likely to face impediments in their first few months of operation (e.g., unexpected or extraordinary expenses) having negative financial consequences for them.

#### 4.3.7. EVENT

The dummy variable EVENT takes the value of 1 when an institution has gone through a significant organizational change in a given year, and is set equal to 0 otherwise. Significant changes include acquiring another bank or banks, restructuring, switching the identity of its principal regulatory agency, or moving its headquarters to a different county. The *a priori* expectation is that banks undergoing such major transitions are more likely to experience financial strains than others, *ceteris paribus*.

#### 4.3.8. INDEPENDENT

This dummy variable takes the value of 1 when the observed institution is not affiliated with a bank holding company. The base group is defined as institutions that are owned by a one-bank holding company. There are advantages and disadvantages for a banking

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<sup>17</sup> An institution is coded as DENOVO if, for instance, it was established and issued its first financial statements in the fourth quarter of 1996.

institution to operate under the umbrella of a bank holding company. Institutions owned by a bank holding company have more flexibility in (and, hence, lower costs of) raising capital than independent banks. In addition to issuing common stock more easily, banks affiliated with holding companies can use other means of raising capital, including issuance of trust preferred securities. Banks operating under a holding company also are able to acquire non-bank subsidiaries more easily than independent institutions. On the other hand, organizing a bank within a holding company increases the regulatory burden and, consequently, operational costs.<sup>18</sup> Administrative expenses are also likely to rise because of the additional layer of bank management (Federal Reserve System n.d.). Given that there are both advantages and disadvantages to operating under a bank holding company, we do not have an *a priori* expectation for INDEPENDENT.

#### **4.4. Empirical results**

We use pooled OLS regression analysis with robust standard errors to estimate three models, alternatively regressing different financial ratio variables, namely ROA, APE, and NIENI, on the same set of independent variables. The results are reported in Tables 2, 3, and 4.<sup>19</sup> All three models are statistically significant at the 1% level and explain 19.39%, 25.03%, and 52.28% of the variation in financial performance indicators.

The coefficients on POST in all estimated models indicate that banking institutions improved their financial positions in the post-Patriot Act period (the coefficients are statistically significant at 10%, 1% and 5% levels, respectively). On

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<sup>18</sup> All bank holding companies are required to file reports with the Board of Governors of the Federal Reserve System (Fed). Also, bank holding companies with 300 or more shareholders must register with the Securities and Exchange Commission (SEC) (Federal Reserve System n.d.).

<sup>19</sup> Two observations were excluded from the regressions reported in Table 4. We treated them as outliers because the recorded values of NIENI were exceptionally large: 2,405.3 and 7,045.5, respectively, versus a sample mean of 76.6.

average, the ROA and APE of all California institutions increased by 0.15 and 1.13 percentage points (ppt), respectively, and NIENI decreased by 4.45 ppt after the Patriot Act, *ceteris paribus*.

The negative coefficient on HIFCAOFF in the first model (i.e., with ROA as the dependent variable) suggests that, in the pre-Patriot Act period, the ROA of institutions operating all of their branches in one of California's HIFCA counties was, on the average, 0.2 ppt lower than those also having branches in non-HIFCA counties, *ceteris paribus*. The coefficient on POST x HIFCAOFF, on the other hand, implies that, for the period after the Patriot Act, banks operating only in the HIFCA counties, on average, experienced an increase of 0.26 ppt in ROA (hence profitability) relative to those in the base group.<sup>20</sup> These results (which are significant at the 5% level) do not lend support to the hypothesis that regulators have followed a risk-based approach in administering and enforcing the new AML regulations by concentrating more of their resources on institutions thought to be more vulnerable to money laundering activities.

The second estimated regression indicates that before the Patriot Act, APE of institutions whose branches all are located in one or more of the HIFCA counties was, on average, 0.73 ppt higher than those in the base group, *ceteris paribus*. The difference in APE between the two groups increased by 0.32 ppt after 2001 (as indicated by the coefficient on POST x HIFCAOFF), implying that HIFCA institutions improved their operational efficiency relative to non-HIFCA institutions; this result is not statistically significant, however.

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<sup>20</sup> After the Patriot Act, ROA for the HIFCA institutions is 0.06 ppt ( $= -0.2044 + 0.2620$ ) higher than for institutions in the non-HIFCA counties.

The findings regarding the change in operational efficiency in the post-Patriot Act period are more conclusive and statistically significant in the estimated model where NIENI is the dependent variable. The coefficient on POST x HIFCAOFF, which is statistically significant at the 10% level, suggests that banks operating branches only in California's HIFCA counties, on average, have improved their NIENI by 5.55 ppt compared to ones also operating offices only in non-HIFCA counties, *ceteris paribus*.<sup>21</sup> Empirical evidence from regression models estimating the operational efficiency of institutions also does not support the hypothesis derived from the public-interest theory that enforcement asymmetries associated with the Patriot Act's AML provisions can be explained by regulators following a risk-based approach. To the contrary, the results imply that, after 2001, banks operating solely in the HIFCA counties and, hence, presumably subject to more stringent AML enforcement, improved their profitability and efficiency relative to those in the base group.

The coefficients on ASSET in all three estimated models suggest that larger banks are both more profitable and operationally more efficient than smaller banks. The results (which are statistically significant at the 1% level) imply that, on average, ROA and APE increases by 0.03 and 0.11 ppt, respectively, and NIENI decreases by 1.29 ppt, when the total assets of an institution increase by 10%, *ceteris paribus*.

As indicated by the coefficient of 0.48 ppt on BANK in the model with ROA as the dependent variable, the results also indicate that, *ceteris paribus*, commercial banks are more profitable than thrifts. However, the findings are mixed on measures of operational efficiency for these two types of institutions. APE is 1.23 ppt lower for

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<sup>21</sup> NIENI for the HIFCA institutions is 2.76 ppt ( $= 2.7892 + -5.5527$ ) lower, on the average, than for the non-HIFCA institutions after the Patriot Act.

commercial banks, suggesting that they are less efficient than thrifts.<sup>22</sup> On the other hand, banks' NIENI is 11.94 ppt lower than that of thrifts, which contradicts the previous result. All three coefficients are statistically significant at the 1% level.

The results of two of the regression models where ROA and NIENI are entered as the dependent variables suggest that de novo institutions are less profitable and efficient than more mature institutions. For de novo institutions, ROA is 5.01 ppt lower and NIENI is 513.26 ppt higher (both results are statistically significant at the 1% level) than for those not in the de novo category, *ceteris paribus*. On the other hand, the coefficient on DENOVO in the second model (Table 3) implies that de novo banks are operationally more efficient in terms of APE, which is 0.85 ppt higher than for others (the coefficient is statistically significant at the 5% level), a result that is not compatible with our *a priori* expectations. One possible explanation is that time is required for newly established financial institutions to reach full staffing levels, which leads them to more assets per employee.

The findings suggest that banks undergoing major transitions experience declines in their profitability and operational efficiency, *ceteris paribus*, as indicated by the coefficients on EVENT in all estimated models. For institutions going through an organizational change, on average, ROA and APE are 0.34 ppt and 0.32 ppt lower, respectively, and NIENI is 9.50 ppt higher than otherwise. The results are statistically significant at the 1% level for the models estimating ROA and NIENI, while the coefficient on EVENT is not significant at any conventional level in the other model.

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<sup>22</sup> As mentioned earlier, however, commercial banks may employ more people per dollar of assets than thrifts because they tend to offer a wider range of financial services.

All three estimated regression models suggest that independent banking institutions exhibit better financial performances than those operating under a one-bank holding company. For independent banks, ROA and APE are, respectively, 0.07 and 0.85 ppt higher and NIENI is 5.23 ppt lower than otherwise, *ceteris paribus* (the first coefficient is not statistically significant, whereas the last two are significant at the 1% level). This result indicates that institutions owned by one-bank holding companies may indeed be more costly to manage.

## **5. Concluding remarks**

The USA Patriot Act of 2001 is one of the most significant pieces of legislation in the banking industry's recent history. Title III of that law imposed stringent AML requirements on banking institutions which increased the industry's regulatory compliance costs substantially.

In this paper, we shed light on the purposes and effects of Title III's anti-money laundering provisions by analyzing a dataset comprising FDIC-insured commercial banks and thrifts headquartered in the State of California between 1996 and 2007, inclusively. California supplies the basis for a natural experiment allowing us to compare the performances of commercial banks and thrifts operating branches in 21 counties designated as "high-risk money laundering and related financial crime areas" (HIFCAs) with those of their counterparts operating in non-HIFCA locations. A risk-based approach to regulatory enforcement would predict the AML compliance-cost burden to fall more heavily on the former than on the latter.

We find, however, that in the post-Patriot Act period, banks posing greater money laundering risk (i.e., institutions whose branches all are located in California's HIFCA

counties) have, other things being equal, improved their profitability (higher returns on assets) and operational efficiency (fewer assets per employee and lower ratios of non-interest expense to net income) relative to the control group. Consistent with a heterogeneous-firm model of regulation, AML enforcement since 2001 thus seems to have transferred wealth from low-risk to high-risk institutions.

One plausible explanation for the uneven distribution of compliance costs we report herein is that institutions operating within California's HIFCA counties already had effective AML mechanisms in place before the high-risk areas had officially been designated. In this respect, these banks may have taken advantage of their existing, effective AML policies and procedures and, thus, improved their financial performances relative to their "less prepared" competitors in the post-Patriot Act period. It also is conceivable that banks and thrifts located in the HIFCA counties previously had formed close relationships with AML regulators, enabling them to influence the designing of rules for enforcing Title III in their own favor.

Promulgation and enforcement of "one-size-fits-all" regulatory rules are likely to create winners and losers within a regulated industry, in the case of Title III here placing a lighter burden on institutions located in HIFCA counties that may have had effective AML mechanisms in place before the Patriot Act was passed versus those that did not. No matter what the explanation may be, it is evident that disregarding institution-specific money laundering risk has imposed higher costs on banks less likely to be targeted by money launderers, at least in the State of California.

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Table 1. Descriptive statistics

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
ROA	0.9790	1.3416	-13.0315	6.4874
APE	3.9182	3.3271	0.2834	38.0742
NIENI	76.6282	187.2293	9.1372	7045.4550
POST	0.5076	0.5001	0	1
HIFCAOFF	0.5574	0.4968	0	1
ASSET	5.87 x 10 <sup>8</sup>	1.1 x 10 <sup>9</sup>	8,076 x 10 <sup>3</sup>	1.18 x 10 <sup>10</sup>
BANK	0.8859	0.3181	0	1
DENOVO	0.0043	0.0651	0	1
EVENT	0.0364	0.1874	0	1
INDEPENDENT	0.5780	0.4940	0	1

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

<b>Variable</b>	<b>Coefficient</b>	<b>t-statistic</b>	<b>p-value</b>
Intercept	-3.5318	-6.35	<0.001
POST	0.1499	1.87	0.062
HIFCAOFF	-0.2044	-2.06	0.040
POST x HIFCAOFF	0.2620	2.18	0.029
ASSET	0.3250	7.95	<0.001
BANK	0.4802	5.86	<0.001
DENOVO	-5.0137	-4.03	<0.001
EVENT	-0.3432	-4.14	<0.001
INDEPENDENT	0.0688	1.20	0.230
N	1,647		
R <sup>2</sup>	0.1939		
F-statistic	17.64		
p-value	<0.001		

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

<b>Variable</b>	<b>Coefficient</b>	<b>t-statistic</b>	<b>p-value</b>
Intercept	-9.7861	-8.57	<0.001
POST	1.1264	6.66	<0.001
HIFCAOFF	0.7279	5.06	<0.001
POST x HIFCAOFF	0.3249	1.16	0.246
ASSET	1.0637	13.22	<0.001
BANK	-1.2297	-3.46	0.001
DENOVO	0.8544	2.25	0.025
EVENT	-0.3196	-1.15	0.249
INDEPENDENT	0.8476	5.08	<0.001
N	1,647		
R <sup>2</sup>	0.2503		
F-statistic	49.48		
p-value	<0.001		

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

<b>Variable</b>	<b>Coefficient</b>	<b>t-statistic</b>	<b>p-value</b>
Intercept	245.7797	14.28	<0.001
POST	-4.4487	-2.14	0.033
HIFCAOFF	2.7892	0.92	0.360
POST x HIFCAOFF	-5.5527	-1.69	0.090
ASSET	-12.9174	-10.53	<0.001
BANK	-11.9352	-4.95	<0.001
DENOVO	513.2608	7.42	<0.001
EVENT	9.5024	4.32	<0.001
INDEPENDENT	-5.2268	-3.49	<0.001
N	1,645		
R <sup>2</sup>	0.5228		
F-statistic	27.30		
p-value	<0.001		