Can Tight Accounting Oversight Distort Investment? Evidence from Mortgage Restructurings after the JOBS Act

Kevin Roshak

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Abstract: I study the effect of accounting oversight on a bank's level of troubled mortgage restructurings. If banks manage their accounting numbers (e.g. regulatory capital or earnings) in the wake of the financial crisis, then they may be hesitant to restructure troubled loans because such restructurings require the bank to mark the value of the loans down. I show that giving a bank more accounting discretion leads the bank to restructure more troubled mortgages. My identification strategy uses a provision of the Jumpstart Our Business Startups (JOBS) Act of 2012 that allows a subset of banks to deregister from the SEC. The first stage of the analysis shows that accounting oversight is of first-order importance in the deregistration decision; in particular, there is a sharp increase in the probability of deregistration from 7% to 30% for banks that can escape accounting oversight. By instrumenting for the decision to deregister with the bank's newfound eligibility to deregister after the JOBS Act, I show that deregistration leads banks to slash their accounting and audit fees and make fewer provisions for loan losses. I next show that deregistration induces banks to double their investment in mortgage restructurings, which entail large upfront accounting expenses; this effect is driven by banks with low capital ratios, and estimates for non-mortgage troubled debt restructurings react similarly. These results suggest that banks manage their capital using real activities, and this is one reason for the low level of mortgage restructurings since the recession.

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Contact: Kevin Roshak, Kellogg School of Management, Northwestern University, (Email) k-roshak@kellogg.northwestern.edu (Tel) 330-206-5806.

1. Introduction

A central concern of the recent recession is the condition of troubled homeowners. The Financial Stability Act of 2009 created the Making Home Affordable Program which comprises twelve different programs, including the Home Affordable Modification Program ("HAMP") and the Home Affordable Refinance Program ("HARP"), designed to help homeowners stay in their homes. Academic research likewise focuses on the importance of homeowner outcomes for the economy: Mian, Sufi and Trebbi (2011) find that foreclosures cause a decrease in investment and consumer demand, and lead to a weaker recovery; Campbell, Giglio and Pathak (2011) find steep discounts[1] for foreclosure sales as well as negative externalities on neighboring properties; and Melzer (2012) shows that underwater homeowners reduce investments in their home and cut payments on their principal. Many argue for homeowner debt forgiveness as an important response to the crisis (e.g. Posner and Zingales (2009), Geanakoplos (2010), and Mian and Sufi (2014)).

Despite the attention and resources dedicated to mortgage modifications, there have been relatively few of them. HAMP, for example, was originally budgeted for $75 billion and aimed at 3 to 4 million modifications. After four years, however, there were only 862,279 permanent modifications (SIGTARP (April 24, 2013)). The literature suggests several explanations for the dearth of mortgage modifications. Adelino, Gerardi and Willen (2013) argue that lenders have difficulty finding the marginal distressed borrower—lenders do not want to grant concessions to borrowers if the borrower is able to meet his original payments, and the lender also does not want to grant concessions to a borrower who will re-default in spite of the concession. In addition, lenders may refrain from restructuring delinquent loans in order to prevent strategic defaults(Mayer, Morrison, Piskorski and Gupta (2011) and Guiso, Sapienza and Zingales (2013)). Piskorski, Seru and Vig (2010) and Agarwal, Amromin, Ben-David, Chomsisengphet, and Evanoff (2011) attribute low renegotiations to widespread securitization of mortgage debt, which creates agency problems between the owners of the debt and the servicers. Agarwal, Amromin, Ben-David, Chomsisengphet, Piskorksi and Seru (2012) find substantial variation in loan

[1] They estimate a foreclosure discount of 27%, which begs the question of why lenders would rather foreclose than renegotiate the mortgage.

renegotiations associated with organizational frictions that prevent large servicers from scaling their renegotiations. This paper posits another friction that prevents mortgage restructurings: banks' desire to avoid actions that decrease their earnings and/or capital.

If banks manage their accounting reports, then they may be hesitant to restructure mortgages. The accounting for debt restructurings forces banks to mark the value of the loan down to approach present value, thus pressuring earnings and capital. Banks that have low capital following the crisis may thus have the strongest incentive to not restructure loans. Identifying this effect is difficult, however, because it is precisely this set of poorly capitalized banks that likely has a worse loan portfolio and therefore more opportunities for profitable restructurings. I use a shock to a bank's accounting discretion to disentangle these two effects, and find that loosening accounting oversight makes banks more willing to restructure loans after the recession. In particular, I use a provision of the Jumpstart Our Business Startups (JOBS) Act of 2012 that allows a subset of over 200 commercial banks to deregister from the Securities and Exchange Commission (SEC). As shown in Figure 1, a wave of banks took advantage of this provision to terminate their SEC registration within two quarters of the passage of the JOBS Act.

My first set of findings show that deregistration is tightly linked to accounting oversight. In particular, banks deregister in order to escape the SEC's requirement for an audit committee, an independent audit, and a statement of managerial responsibility. To identify this fact, I compare SEC reporting requirements with those of the Federal Deposit Insurance Corporation Improvement Act (FDICIA) of 1991. All banks are subject to FDIC rules, but only banks that are registered with the SEC must comply with the SEC's requirements; the FDIC and the SEC have many similar reporting requirements, but these regulators use different compliance thresholds. For example, all banks registered with the SEC must have an independent audit, but only banks with more than $500 million in assets are required by the FDIC to have an independent audit. A bank that deregisters from the SEC, therefore, can only escape the requirement for an independent audit if it has less than $500 million dollars and thereby falls outside of the FDIC's requirement. Among banks that are newly eligible to deregister from the SEC after the JOBS Act, I find a strong and discontinuous increase in deregistration probability for banks with less than $500 million in assets. Banks that are newly eligible to deregister from the SEC are four times more

likely to deregister if doing so allows them to escape accounting oversight. Using the expanded eligibility to deregister as an instrument for the banks' accounting discretion, I show that more accounting discretion leads banks to cut their audit and accounting fees, and to make fewer provisions for loan losses (an accrual account that can be used to manage earnings).

Figure 1 here

I next turn to the effect of accounting discretion on troubled debt restructurings (TDRs). Accounting for TDRs is similar to accounting for research and development (R&D) in that the expense is recognized immediately while the revenue accrues over the life of the project. As soon as a loan is restructured, the lender must take a loss equal to the change in contractual payments, discounted by the effective interest rate on the original loan. If banks manage their accounting reports, they may weigh the scales against restructurings in order to avoid or delay the recognition of a loss[2].

There is also an accounting wedge between restructurings and delinquent loans[3]. If a loan goes delinquent, managers may pool it with other delinquent loans and estimate the risk of the entire portfolio. This gives managers discretion in estimating the loss from a delinquent loan, and allows managers to only write down the expected loss. If a loan is restructured, however, the manager is essentially required to mark the loan to market[4] and thus realize the entire loss[5]. In an op-ed titled "Why Mortgage Modification Isn't Working" for the Wall Street Journal on January 20, 2010, the CEO of ING Direct USA, Arkadi Kuhlmann, explains:

> … the government is suffocating banks with counterproductive accounting rules….If a bank modifies a mortgage it must record the write-down as an expense on its books. For example, if a homeowner's monthly mortgage payment is reduced

[2] The logic is similar to papers that study the effects of earnings management on R&D. If managers care about their short-term accounting reports, then they may cut positive-NPV R&D projects in order to inflate earnings (Graham, Harvey and Rajgopal (2005), Roychowdhury (2006), Bhojraj, Hribar, Picconi and McInnis (2009), Edmans, Fang, and Lewellen (2013)).

[3] A TDR is considered an impaired loan and is treated under Accounting Standards Codification (ASC) Subtopic 310–10, whereas delinquent loans are treated under ASC 450-20 for loss contingencies.

[4] The book value of the restructured loan equals the newly contracted cash flows discounted by the original interest rate, so the book value will technically differ from the true market value to the extent the original interest rate differs from the true market rate. Due to the large decline in interest rates after the crisis, it is possible that restructuring a loan requires it to be marked to below-market value.

[5] In brief, the loss attributed to a delinquent loan equals p*L, where p is the probability that the loss will be realized and L is the size of the loss. By restructuring a loan, the loss increases from p*L to L.

> by $400 per month for 24 months, the bank has to report that it "lost" $9,600 ($400 times 24 months)…
>
> This rule, for obvious reasons, makes banks reluctant to modify. They don't want to take the "loss," which can get very big for larger mortgages with long modified periods. So there's a huge financial disincentive to offer modification.

The first reason Mr. Kuhlmann gives for low mortgage modifications, and the reason that occupies the plurality of the op-ed, is accounting. There is little mention of the cash flows associated with mortgage restructuring; rather the attention is on accounting "losses." This is consistent with banks managing their accounting reports, potentially at the expense of profitable restructurings. The agency problem is in many ways similar to the short-termism of Holmstrom (1982), Miller and Rock (1985), Narayanan (1985), Stein (1989), and Von Thadden (1995). If banks are 'compensated' by regulators for maintaining adequate regulatory capital levels during and after the crisis, then they may defer positive NPV restructurings that require a hit to earnings and capital.

Acquisitions of lending companies provide anecdotal evidence of the accounting effect on mortgage restructurings. On July 2, 2011, *The New York Times* ran a story about large banks quietly offering principal forgiveness to surprised borrowers on loans that were still current. In particular, Bank of America and Chase had undertaken substantial restructurings of risky option adjustable-rate mortgages (ARMs) that they acquired through Countrywide and Washington Mutual, respectively (Streitfeld, 2011). Financial journalist Felix Salmon speculated that banks were willing to restructure these mortgages precisely because they were purchased at near market value. Thus, restructuring these acquired loans did not require Bank of America or Chase to take a loss, in contrast to restructuring loans that were on Bank of America or Chase's books prior to the crisis (Salmon, 2011). I more formally test this accounting effect using the JOBS Act and its shock to banks' accounting oversight.

My first set of results, mentioned above, imply that deregistration leads banks to spend less on independent auditors and to make less provisions for loan losses. This extra discretion allows banks to increase their earnings and capital through accrual decisions. A large accounting literature, surveyed in the following section, implies that this increase in accrual discretion allows banks to substitute more accrual management for real earnings

management. In short, because banks can raise their reported earnings through accruals, they are less tempted to refrain from positive-NPV (but income-reducing in the near-term) mortgage restructurings.

In my second set of results, I find that looser accounting standards lead banks to double their mortgage restructurings. The identifying assumption is that banks newly eligible to deregister from the SEC under the JOBS Act did not face any other conflating variable in the quarters surrounding its passage. Placebo tests indicate that these banks trended nearly identically to the average bank prior to the JOBS Act. Further, there is useful variation within banks that are newly eligible to deregister: as shown in my first set of results, banks with less than $500 million are substantially more likely to deregister due to their ability to escape accounting oversight. Defining my treatment group as banks that are newly eligible to deregister and have less than $500 million in assets, I can compare them to other banks that are also newly eligible to deregister but have more than $500 million in assets. I find that it is only my treated group that restructures more loans after the JOBS Act, alleviating concerns of omitted variables associated with the passage of the JOBS Act. Finally, I find heterogeneity in bank's response to looser accounting standards. Banks with greater short-term pressures, as measured by a lower capital ratio, respond much more strongly. My estimates imply that a bank with a capital ratio in the bottom quartile (less than 8.5%) increases its restructurings by 1.3-2.0% of its loan portfolio, which is double the effect of the full sample.

This paper proceeds as follows. The next section reviews related literature. Section 3 describes the dataset construction. Institutional details surrounding the JOBS Act, its changes to accounting oversight, and the mechanics of troubled debt restructurings are discussed in section 4. Section 5 explains the research design and empirical results. Finally, section 6 concludes with an interpretation of the results.

2. Related literature

To explain my results, it is important to distinguish between two types of earnings management: manipulation of accruals, and manipulation through real activities. Accrual management typically entails timing the recognition of losses, which may be relatively innocuous compared to real earnings management, which entails changes to real activities

that involve an immediate hit to earnings (eg R&D or pricing and marketing strategies). Tighter accounting oversight raises the cost of accrual management—for example, auditors may force banks to right off loans or make provisions for bad debt at inopportune times—but is inherently limited in its ability to curb real earnings management. Accounting theory finds that, conditioning on an agent's desire to manage earnings, tighter accounting standards cause managers to substitute away from accrual management and toward real earnings management (Demski, Frimor, & Sappington, 2004)—a bank may refrain from restructuring troubled debt, for instance, because such restructurings involve an immediate hit to earnings that cannot be compensated for with reductions in contemporaneous loan-loss provisions. Additionally, tighter accounting standards can endogenously increase myopia. When accounting numbers are more accurate, principals may place more weight on accounting results when evaluating managers, thus further increasing the returns to real earnings management (Ewert & Wagenhofer, 2005). This more generally relates to a large theoretical accounting literature on the effects of accounting standards on the ex-ante behavior of managers (Penno (1990), Goldstein and Sapra (2012), Gigler, Kanodia, Sapra, & Venugopalan (2012), Hermalin and Weisbach (2012), and Edmans, Heinle, and Huang (2013)).

More precisely, the intuition for how tighter accounting standards exacerbate real earnings management has three ingredients: 1) The manager's cost of accrual manipulation is convex, 2) The manager's cost of real earnings manipulation is convex, and 3) The manager's benefits of total manipulation are concave. In this setting, higher costs of accrual manipulation cause agents to substitute toward real earnings management—the underlying myopic incentives did not go away, rather they manifest themselves in a different way. Convex costs of accrual manipulation can be thought of as the cost of bargaining with an auditor, or the increasing litigation risks from accrual manipulation. The agent's convex cost of real earnings management can be thought of as the destruction of firm value due to short-termism. If managers manipulate earnings a little bit by cutting near-zero NPV R&D projects, then the cost of real earnings management is close to zero; more manipulation, however, requires the manager to destroy more value by cutting better projects. Finally, there are several scenarios where the benefits to manipulation are concave. If an agent wants to manipulate the stock price through a misreporting of

earnings, then he will be unable to do so if total manipulation is high. That is, the market will not trust his earnings report if investors suspect manipulation. Thus, too much manipulation will start to undo the manager's gain from manipulation. If total manipulation is very low, however, then the market will trust the earnings report, so the marginal benefit of manipulation is high. Agency problems with bank regulators can also create concave benefits to manipulation. Bank regulators are short a put option on the bank, so they will interfere more at lower levels of capital. That is, a regulator may get worried if the bank's capital ratio dips below 9%; at 7%, say, the regulator may spend more time at the bank; at 5% the regulator may disallow dividend payments; and at 3% the regulator takes over the bank. From the bank's perspective, manipulating capital from 3% to 5% has a higher marginal benefit than manipulating capital from 9% to 11%, ensuring decreasing marginal returns to manipulation.

The accounting literature also provides empirical support for the substitution between accrual and real earnings management. Cohen, Dey and Lys (2008) find that firms engage in more real earnings management after the passage of Sarbanes-Oxley, which raised the cost of accrual management. Accrual management, which had steadily increased in the fifteen years prior to Sarbanes-Oxley, significantly fell afterwards. Zang (2012) similarly finds that firms more generally substitute accrual management for real management based on the relative costs of each. My paper contributes to this literature by examining a setting particularly relevant to the crisis. Additionally, the JOBS Act provides a shock to the accounting discretion of a subset of banks, leaving a large group of similar banks unaffected in the post-period to serve as a control group, whereas Sarbanes-Oxley largely affected all public firms. Finally, my setting is unique in that the JOBS Act makes real earnings management less desirable, whereas the literature focuses on cases where real management becomes more appealing (e.g. Cohen, Dey and Lys (2008) after Sarbanes-Oxley) or on scenarios where the firm has a particularly strong incentive to manipulate earnings (e.g. the firm is near earnings targets as in Roychowdhury (2006), Bhojraj, Hribar, Picconi and McInnis (2009), and Zang (2012)). My setting can therefore examine the reversal of the results found in the rest of the literature. Further, looking at the reversal may avoid certain omitted variable concerns. For example, studies that examine firm behavior near earnings targets tend to find that firms manage their real activities (e.g. cut

R&D and other discretionary expenses), but it is not clear that these cuts destroy firm value. It could be that managers must budget their time, and therefore decide to spend a disproportionate amount of their time making cuts when the firm is less profitable than expected; or, managers could use below-expectations earnings as a signal of the profitability of certain discretionary expenses and thus rationally make cuts. If the results hold for the reversal (when accounting standards are relaxed and there is less incentive for real earnings management), then it is less likely that an omitted variable drives the original results.

This paper also contributes to the large empirical literature on the effects of accounting oversight on accruals and their information content. By removing the requirement for an independent audit, the JOBS Act allows me to study how banks change their accrual behavior with less oversight. Studying Sarbanes-Oxley, Iliev (2010) finds that auditor attestation requirements lead to more conservative (i.e. less discretionary accruals) earnings reports; Altamuro and Beatty (2010) study similar regulatory requirements after the passage of the Federal Deposit Insurance Corporation Improvement Act (FDICIA) and find that earnings are less conservative, but the accruals (in this case a bank's loan-loss provision) are more informative of actual losses, earnings are more persistent, and banks engage in less benchmark-beating activities. Auditors in particular have a role in decreasing income-increasing accruals (Dahl, O'Keefe and Hanweck (1998) and DeBoskey and Jiang (2012)) because auditors are more likely to be sued when financial statements overstate earnings (e.g. Becker, Defond, Jiambalvo and Subramanyam (1998) and DeFond and Subramanyam (1998)). A related and very large literature studies the market's response to tighter accounting oversight—if the market does not understand or value the firm's accruals, then firms may be more able to fool investors when firms have less accounting oversight. Greenstone, Oyer and Vissing-Jorgensen (2006), using the 1964 Securities Acts Amendments as a shock to disclosure, find that investors value the SEC's mandated disclosures at up to 22.1 percent of equity value. Investors do not, however, reward OTC firms that switch to the NYSE less after the 1964 law, which is surprising because the switch entailed a larger change to mandated disclosure before the law (Battalio, Hatch and Loughran (2011)). Accrual accounts seem to be particularly difficult for the market to value as investors may fail to fully "pierce the veil" of accounting

statements (e.g. Bergstresser, Desai and Rauh (2006), Hirshleifer, Hou and Teoh (2012), and Battalio, Lerman, Livnat and Mendenhall (2012)).

My results can also be interpreted through the lens of macroprudential policy. Microprudential policy aims to ensure that individual banks survive in a crisis. To do this, they set limits on the banks' capital ratio. A problem with this approach is that there are two ways for a bank to improve their capital ratio: they can issue new equity, or they can shrink their assets. If many banks do the latter, then microprudential policy can be pro-cyclical (Hanson, Kashyap and Stein (2011)). Essentially, there is a short-termism problem between banks and their regulators. Banks manipulate the capital ratio in order to appease their regulators, but they do so through real manipulation that is undesirable for the regulator. Granting extra accounting discretion during a crisis, then, can be analogous to easing the capital requirements (Heaton, Lucas, & McDonald, 2010), which is a preferred macroprudential policy (Yellen, 2010),

3. Data

A modest contribution of this paper is a novel match between SEC and FDIC regulatory filings and Datastream. There is a large literature on the differences between private and public firms, yet very little data on private firms. While the situation is improving (Asker, Farre-Mensa, & Ljungqvist, 2011), most research must rely on firms transitioning from private to public at IPO (e.g. Mikkelson, Partch and Shah (1997), Bernstein (Forthcoming)) or on firms going private through acquisition or delisting (e.g. Lehn and Poulsen (1989), Guo, Hotchkiss and Song (2011)). A limitation of these studies is that many variables change when firms transition from private to public and vice-versa—ownership, management, liquidity, and financial reporting all change substantially, making it difficult to isolate the effect of any given mechanism. There is a wealth of information, however, on all banks, whether public or private. Further, there is substantial variation in the size of public banks, with many small banks forced to file with the SEC, and there are likewise many private banks that trade over-the-counter. By matching the filings of the SEC and FDIC with Datastream, it is possible to examine the differences between public and private banks and explore the public vs. private decision at a different margin than the rest

of the literature. There may be certain pressures of publicly listing one's stock that are particularly relevant for firms going through an IPO, for example, while other factors are more important after the firm is already listed. The JOBS Act, by allowing firms to costlessly change their accounting oversight overnight, allows me to examine this one particular mechanism while leaving many other variables (such as ownership, management and listing status) unchanged.

Data from the SEC allows me to see which banks publicly register their securities and therefore must comply with SEC requirements. Additionally, information in the filers' 10ks will determine whether they are eligible to deregister from the SEC as a result of the JOBS Act. I pull the index of all SEC filings from 2000 through the second quarter of 2013 from Edgar's FTP site.[6] Then I collect the CIK[7] codes of all depository institutions that have filed on Edgar.[8] By merging the index of SEC filings on the left of the bank CIK codes, I collect the location of every filing on Edgar made by a depository institution. There are 3177 depository institutions that are listed on Edgar, consisting of 623,920 total filings. I download the 10ks of these banks for 2011 and 2006. Many public banks are too small to trade on major exchanges and are therefore not in standard databases, so I collect data from most filings by writing a Perl script to pull relevant data; I hand-collect data for filings where the Perl script fails.

In particular, I pull 10k data on the filers' name, street address, city, state, and zip code. I also collect data from the section titled "Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchase of Equity." This section contains the exchange on which the filer trades on and its ticker (if any), as well as the filers' number of shareholders of record. The number of shareholders of record is an important part of my identification strategy. In brief, issuers keep a record of holders for purposes of paying dividends, distributing financial and proxy statements, etc. Most investors, however, are not listed in the issuer's records; rather, investors who buy through a broker are listed as "beneficial owners" or "street holder" while the broker owns the title to the stock. In this

[6] ftp://ftp.sec.gov/edgar/full-index/
[7] CIK codes are unique company identifiers for Edgar.
[8] Edgar's company search allows the user to search by SIC code, and returns the CIK code for all companies under the specified SIC industry. I make a list of all companies under SIC codes 6021, 6022, 6035, and 6036, corresponding to national commercial banks, state commercial banks, federally chartered savings institutions, and non-federally chartered savings institutions, respectively.

case, the broker is the "holder of record" because he owns the stock certificate, while the investor is the "beneficial owner" because she owns the property rights to the equity. Securities law conditions on the holders of record, and this is what is reported in 10ks[9]. More information on "shareholders of record" can be found in the section below titled "Institutional Setting."

I collect data from 679 bank 10ks that were filed in 2011, and 891 filings from 2006. Of the 2011 filers, I am able to collect information on the number of shareholders of record for 615 filers; I further collect information on the number of shareholders of record as of the 2006 filings, and am able to collect this data for 477 of the 2011 filers.

Data on deregistration decisions comes from SNL financial. Since 2002, SNL financial has collected information on banks that deregister from the SEC. This effort was partially motivated by a perceived increase in banks "going dark" after Sarbanes-Oxley (Engel, Hayes, & Wang, 2007). The source of the data is form 15s filed with the SEC by financial institutions. A Form 15 is a simple, one-page document that allows a registrant to declare his deregistration; the only fields the registrant must provide are his name and location, the title of the security in question, and the number of shareholders of record. These fields are then matched to call report data by city, state, and name. 87 banks that deregistered from the SEC from the passage of the JOBS Act on April 5, 2012 to August 10, 2012, at which point the pace of deregistrations slowed. All 87 banks that deregistered during this period were not allowed to deregister before the JOBS Act. I match these deregistrations to their SEC filings by hand.

I use standard data on commercial banks' balance sheets and income statements from Federal Reserve Reports of Income and Condition (Call Reports). This data is used to study the determinants of the deregistration decision and also provides most of the outcome and control variables for my analysis. Variable definitions are provided in Appendix A, along with instructions for forming consistent time series of the data (Call Report fields tends to become increasingly disaggregated over time, so calculating the same account requires using new and different variables). Publicly listed banks almost always organize themselves as holding companies, and the holding companies are the legal entities

[9] (Greenstone, Oyer, & Vissing-Jorgensen, 2006) also use the "shareholders of record" variable to study changes in disclosure requirements enacted by the 1964 Securities Acts Amendments.

that file with the SEC. For this reason, bank data is aggregated at the holding company level. To determine a bank's top holding company at a given point in time, I combine the FDIC's Institution Directory with the Chicago Federal Reserve's list of all bank mergers and acquisitions. The Institution Directory lists the current holding company, while the bank merger data lists the bank's top holding company each time the bank is involved in a merger or acquisition. These two datasets allow me to construct a panel consisting of each bank's holding company at each point in time[10]. To reduce the effect of outliers, all holding-company-level data is winsorized at the 99% level by year.

To merge the SEC data with the Call Reports, I match 679 banks that file with the SEC in 2011 with the 2012Q1 list of banks that file call reports and their respective holding companies. The first pass of the match conditions on the city and state of the institutions—that is, a potential match is one in which the SEC filer has the same city and state as either the call report bank or its holding company. The second pass of the match compares the name of the SEC filer with the name of the call report bank and its holding company. I perform this match by hand with the help of the compged function in SAS, which computes a generalized edit distance between two strings. This process allows me to match all but 94 of the SEC filers. To improve the match, I iterate the above process with the unmatched SEC filers. Instead of matching on city and state in the first pass, however, I match only on state. Then I repeat the second pass by hand-matching SEC filers with the call reports based on name and street location, allowing me to match 82 of the remaining SEC filers. In sum, I am able to match 667 of the 679 banks that filed with the SEC in 2011 to their call report data.

I collect Datastream trading data on all commercial banks listed in the Datastream database as of 6/10/2013. Datastream provides daily data on each security's ticker, exchange, closing price, market value of equity, volume traded, shares outstanding, assets, asking price, bid price, daily high, daily low, opening price, and volume-weighted average price of the day (VWAP). Crucially, Datastream has information on securities that trade over-the-counter. Because many of the public banks that register with the SEC are small

[10] Some banks have call report data that precedes the first observation in this panel (eg because the bank existed before its first merger). For these bank-quarters I use information from the bank's first observation in the panel.

and do not trade on a major exchange, the only source of trade data is the over-the-counter market. There are 1275 banks with trading data on Datastream.

To match Datastream to the call reports, I take four steps. First, I match Datastream banks to SEC filers by name. This step is similar to the match between call reports and SEC filers in that I use the Compged function to help me hand-match the datasets. Of the 1275 banks on Datastream, I match 565 of them to one of the 679 SEC filers in 2011. Secondly, I use a dataset provided by the Chicago Federal Reserve that links holding companies to their identifiers on CRSP. This allows me to match Datastream to CRSP by ticker and company name; I match 43 additional Datastream banks to their holding company identifiers this way. Thirdly, I use the Chicago Federal Reserve's list of all holding companies (not just those listed on CRSP). There are 6433 such holding companies active in 2011. I match Datastream to this list by hand with the help of the compged function; this provides an additional 323 matches. Of the 1275 banks on Datastream, I have now matched 565 from SEC filings, 43 from CRSP information, and 323 from the list of all holding companies for a total of 931 matches. The final step is to match the remaining 344 Datastream banks directly to the call reports by name and assets. I first condition on Datastream assets being between 50-150% of the bank's assets reported in the call reports. Then I hand-match banks using name and assets. This allows me to match an additional 153 Datastream banks to their call report data. The remaining 191 Datastream banks that I cannot match are discarded; the main reason for these unmatched banks appears to be inactivity—Datastream typically keeps data on securities as long as there is some activity, and many banks that fail are kept in the database because there are sporadic trades in their stock. Because I only match to call reports as of 2011, many of these banks will be unmatched.

My post-period starts with the passage of the JOBS Act at the very beginning of 2012Q2, and includes the subsequent eight quarters through 2014Q1. In order to ensure that my pre-period does not overweight certain quarters, I use the full two years before the passage of the JOBS Act as my pre-period—that is, 2010Q2 thru 2012Q1. It is important to use full years in case some variables exhibit seasonality over the year. In placebo tests, I roll my sample window back a year and treat 2009Q2 thru 2011Q1 as my pre-period, and

2011Q2 thru 2012Q1 as my post-period; if there are pre-trends among my sample group, I would expect them to manifest in the placebo sample.

4. Institutional Setting

A. Troubled Debt Restructurings[11]

The main dependent variable in my analysis is the amount of troubled debt restructurings (TDR) on a bank's balance sheet. In order to be classified as a TDR, two conditions must hold: the bank must grant a concession to the borrower, and the borrower must be experiencing financial difficulties.

Concessions to borrowers can take the form of several types of modifications to the terms of the debt. For example, a reduction in the stated interest rate, a reduction in the face value of the debt, a reduction in the accrued interest, or an extension of the maturity date at below-market rates would all constitute a concession to a borrower. When evaluating whether a change in interest rate constitutes a TDR, banks must compare the new interest rate to the market rate they would charge for a similar amount of risk. Further, if the borrower cannot obtain funds at the market rate of interest for debt with similar characteristics as the restructured contract, then the bank is granting a concession by revising the interest rate to the current market rate. Even if the contractual interest rate increases due to a restructuring, it may still constitute a concession if the new rate is below market rates for new debt with similar risk. Certain maturity extensions are not considered concessions if the delay is insignificant relative the original contract terms (eg unpaid principal, collateral value, original maturity and duration, or frequency of payments).

The second condition for a TDR is that the borrower is experiencing financial difficulties. The simplest indication of financial difficulty is if the borrower defaults on any of his debt. Financial difficulty can also be identified if the debtor is likely to default in the

[11] This section borrows heavily from the FASB Accounting Standard Update (ASU) 2011-2 and supervisory guidance from the OCC, found respectively here:
http://www.fasb.org/jsp/FASB/Document_C/DocumentPage?cid=1176158408975&acceptedDisclaimer=true
http://www.occ.gov/news-issuances/bulletins/2012/bulletin-2012-10.html

absence of a modification, even if the borrower has not presently defaulted. Another case of difficulty is displayed when the borrower cannot obtain funds from other lenders at the current market interest rate for nontroubled debt.

As mentioned in the introduction, accounting for TDRs is similar to accounting for R&D in that the entire cost of the investment is expensed upfront rather than spread out over the life of the restructuring. To determine the amount of the impairment, most loans will use the "present value method." This measure calculates the present value of the expected future cash flows from the mortgage restructuring at the loan's original effective interest rate. Any difference from the book value of the loan must be expensed. Alternatively, if a loan is "collateral dependent," meaning that loan repayment is expected to solely come from the underlying collateral, then the loan's value is measured as the value of the collateral less the selling costs.

The hit to earnings from restructurings can be quite large. For example, consider a $100 30-year mortgage made in July of 2007 at the market rate of 6.58%. Assume the borrower has trouble paying in July of 2010 and cannot find refinancing; the bank who owns the mortgage offers to restructure the debt at the current market rate of 4.78%[12] Had the borrower found refinancing at the market rate, then the bank would simply sell the balance of the loan to the refinancer and the bank would not face a loss. If, on the other hand, the borrower cannot find refinancing but instead the bank proceeds with a TDR, then the bank will suffer a large hit to its earnings. In particular, the annual coupon changes by about $1.38 for the remaining 27 years; discounted at the original interest rate, this equals $17.2. Thus, a TDR with a small concession to the current market rate of interest will cause a bank to take a loss of nearly 20% of the face value of the loan.

Contrast this with the decision to let the loan go delinquent without any restructuring. In this case, the bank must modify its allowance for loan losses to account for the worse portfolio, but the bank can estimate the expected change in portfolio quality. Further, the change has to be estimable before it can be marked. If there is a range of possible losses with "no amount within the range…a better estimate than any other

[12] These are the FHFA average mortgage rates, found here: http://www.fhfa.gov/DataTools/Downloads/Pages/National-Average-Contract-Mortgage-Rate-History.aspx

amount…the minimum amount in the range shall be accrued."[13] If the loan is eventually considered impaired, then the bank will have to treat it like a TDR and write off the difference between the present value of the contractual and the expected payments.

B. Jumpstart Our Business Startups (JOBS) Act

The JOBS Act is a collection of many smaller bills that were combined and made law in April 2012. There are five main provisions of the bill, listed in TABLE 1. This paper uses only one provision, listed first in table 1, in its experimental design. I use what is sometimes called the "Facebook rule" as a shock to registration status with the SEC, and hence accounting standards. Prior to the JOBS Act, the 1964 Securities Acts Amendments updated the Securities Exchange Act of 1934 to require that all firms register with the SEC if they had at least 500 shareholders of record and $10 million in assets. Nearly all banks have at least $10 million in assets, so SEC registration was determined solely by the number of shareholders of record. A "shareholder of record" is a very particular type of shareholder, which will be discussed in more detail in the below subsection. In short, the record holder is who the bank sends dividend payments to, which in today's environment is typically a broker rather than an individual shareholder.

The JOBS Act provision is nicknamed the "Facebook rule" because Facebook nearly triggered automatic SEC registration a year before it went public. Facebook had many early employees who owned stock and wanted liquidity, and there was a large demand for Facebook stock. As a result of insiders selling their shares, Facebook nearly exceeded the 500 shareholder count. While Facebook was able to avoid triggering SEC registration until its IPO (partly through coordination with funds at Wall Street banks like Goldman Sachs who raised money with the intent of investing in private Facebook shares, with the fund counting as a single "holder of record"), many community banks are not able to do so. When raising equity from their community, many small banks slipped into SEC registration, and others had to worry about inadvertently triggering SEC registration when divorce or death caused the number of shareholders to multiply[14].

[13] ASC 450-20-30-1

[14] See "Small Banks Get a Freer Hand," Wall Street Journal, April 23, 2012.

The JOBS Act increased this SEC registration threshold from 500 to 2000. Further, in order to deregister from the SEC prior to the JOBS Act, issuers were required to bring their shareholder count to below 300. The JOBS Act also raised this threshold to 1200. The upshot is that banks with between 300 and 1200 shareholders of record became instantly eligible to deregister from the SEC when the JOBS Act passed. There are 200 banks that I identify as newly eligible for deregistration, and they will form the treated group in my experimental design.

Table 1 here

The other provisions of the JOBS Act are aimed at either making it easier to stay private, or making it easier to go public. No other provisions directly affect my treated group of public banks. Provisions 2, 3 and 5 are all aimed at making it easier for private companies to raise money. Provision 2 repeals the ban on "general solicitation" of private issues. This ban meant that private companies, including hedge funds and private equity funds, could not market their shares to a wide audience; in fact, private companies were restricted to sophisticated investors when discussing returns and other financial matters. Facebook also ran into this constraint when trying to issue equity in the US as a private company—there was so much media coverage when Goldman Sachs raised a fund to invest in Facebook, that the SEC investigated the fund as a violation of the general solicitation ban[15].

Provision 3 of the JOBS Act exempts certain forms of crowdfunding from registration. Provision 5 similarly makes it easier for private companies to raise money from small investors by increasing Regulation A allowable offer size.

Finally, provision 4 makes it easier for companies to go public by creating an "IPO on-ramp" for emerging growth companies (EGCs). EGCs are defined as companies with less than $1 billion in revenue or less than $700 million in public float (the public float is the equity value held by non-insiders, which includes executives, directors, and holders with large stakes). This "on ramp" includes several features: 1) EGCs only need to provide two years of audited financial statements rather than three, 2) EGCs can file with the SEC

[15] See, for example NYT's Dealbook column on January 17, 2011 titled "Goldman Limits Facebook Investment to Foreign Clients" here: http://dealbook.nytimes.com/2011/01/17/goldman-limits-facebook-investment-to-foreign-clients/?_php=true&_type=blogs&_r=0

confidentially when seeking regulatory approval; they can then start their roadshow as soon as 21 days after the public filing, 3)EGCs can opt-out of certain Sarbanes-Oxley requirements for up to five years, and 4) EGCs can "test the waters" with institutional accredited investors to gauge interest in an offering before filing with the SEC.. Of these accommodations, confidential submission with the SEC and reduced audit history have been the most frequently used, though many provisions are still evolving.[16]

C. Shareholders of Record as a Research Design

The JOBS Act creates a set of 200 banks that are able to effortlessly deregister from the SEC overnight. These banks were all subject to the registration requirement for banks that, at one point, had at least 500 shareholders and who currently have more than 300 holders. The JOBS Act, by raising these thresholds to 2000 and 1200 respectively, allows banks with between 300 and 1200 holders to deregister. This group of newly eligible banks is fundamental to my research design—these banks can deregister and thus escape certain accounting requirements, giving me a shock to accounting oversight (which will be discussed in more detail in the next subsection). It is important to discuss this "shareholder of record" measure, then, to understand my research design.

There is a distinction between a "holder of record" and a "beneficial owner." The holder of record is the person who the issuer sends dividend payments and other shareholder information to. Generally this is a broker rather than an individual; the broker then pays the beneficial owner by passing on the dividend. The beneficial owner has claim to the stock, but the holder of record owns the physical certificate. In the past, however, there was not always a distinction between record holders and beneficial owners. At the time the holder of record rule was codified into law in the 1964 Securities Acts Amendments, there was a close correlation between a company's number of holders of record and its number of beneficial owners. This is no longer true today.

As of the 1964 Securities Acts Amendments, stock trading was followed by transfers of stock certificates. After a given trade, the seller had to transport the notarized stock certificate to the buyer, and the buyer then had to send the certificate to the issuer's

[16] Latham and Watkins LLP produced an analysis of EGCs in the first year after the JOBS Act titled "The JOBS Act After One Year: A Review of the New IPO Playbook" here: http://www.lw.com/news/jobs-act-at-one-release

transfer agent who recorded the change in ownership in its stock. As volume surged in the late 1960s, well before the widespread use of computers, this antiquated system began to buckle under a "paperwork crunch"[17]. Many trades failed to deliver, and the solvency of brokers was in question—did they fail to deliver their certificate because of problems in the back office, or because of insolvency? Amidst the distress, the US government passed the Securities Investor Protection Corporation (SIPC) to guarantee securities held by brokerage firms for clients up to $50,000. This guarantee gave investors the confidence to leave their stock certificates with the brokers and prevent runs on brokers. Importantly, the SIPC would allow many investors to leave their certificates with their broker, thus alleviating the paperwork crunch. By 1973 the Deposit Trust Company was created to serve as a central location for stock certificates; each broker had an account with the DTC, and trades between brokers would be netted out at the DTC without any physical transfer of stock certificates. These changes after the 1964 Securities Acts Amendments created a rift between a company's number of holders of record and its beneficial owners. Many separate beneficial owners could keep their certificates at the same broker, thus only counting as a single holder of record.

As of at least 2005, there have been competing arguments about the shareholder of record metric. On the one hand, some have advocated for the replacement of the shareholder of record metric with the number of beneficial owners to better reflect the issuer's shareholder base. If the original intent of the shareholder threshold was to ensure that small and diffuse shareholders were protected and given appropriate information, then the change in the nature of record holders in the late 1960s should be followed by a change in securities laws. There is also concern about manipulation of the "holder of record" metric. This position was made in the Final Report of the Advisory Committee on Smaller Public Companies to the U.S. Securities and Exchange Commission (2006).

On the other side, the American Bankers Association has lobbied since at least 2005 for an increase in the registration threshold. Due to the fact that nearly all banks pass the

[17] This section borrows heavily from (Wells, 2000), which has a more complete discussion of these changes.

$10 million asset threshold and many community banks raise equity from small and local investors, banks are disproportionately hurt by a low registration threshold.[18]

The upshot of this discussion is that the change in the registration threshold enacted by the JOBS Act was not easily anticipated by market participants. Table 2 lists key dates in the passage of the JOBS Act provision that updates the number of holders of record thresholds from 300 and 500 to 1200 and 2000. There are several different bills in 2011 that would update the threshold, and many of them died in committee (eg. S. 556). Further, the thresholds vary by bill: H.R. 2167 lifted the threshold to only 1000, while H.R. 1965 lifted the threshold to 2000. Clarity comes in the fourth quarter of 2011 when, on November 2, the House of Representatives overwhelmingly passed H. R. 1965 by a vote of 420-2. Within a week, there was a similar bill introduced in the Senate that would also raise the registration threshold to 2000, and the deregistration threshold to 1200.

Table 2 here

D. SEC vs. FDIC Accounting Standards

While the JOBS Act allows banks to deregister from the SEC, they are still subject to rules set by the Federal Deposit Insurance Company (FDIC). In particular, the Federal Deposit Insurance Company Improvement Act (FDICIA) of 1991 sets the accounting standards for banks. FDICIA served as the benchmark for the Sarbanes-Oxley Act of 2002, which updated the SEC's accounting standards. Each contains similar provisions, listed in Table 3.

Table 3 here

Table 3 shows how the JOBS Act differentially affects different banks. Prior to deregistration from the SEC, all registered banks are subject to the first three provisions in table 3: each must form an audit committee to oversee an annual audit by an independent accountant, and management must take responsibility for the accounting numbers and report on the effectiveness of internal controls. Further, registered banks with a public

[18] See the Statement of the American Bankers Association Before the Advisory Committee on Smaller Public Companies from June 9, 2005.

float[19] of greater than $75 million must comply with SOX section 404 requiring that auditors also attest to the effectiveness of the firm's internal controls.

Important heterogeneity comes from FDICIA's accounting requirements, which kick in at different levels than the SEC's requirements. FDICIA sets thresholds based on asset size, whereas the SEC, if it uses thresholds at all for a given requirement, uses the public float of a company. This is useful because the two standards have essentially identical requirements, but the requirements kick in at different points.

Banks that deregister from the SEC, therefore, can only escape certain accounting standards if they have assets less than $500 million. The requirement to hire an independent auditor, for example, applies to all firms registered with the SEC and all banks with assets over $500 million. A bank that deregisters from the SEC, therefore, can only escape the requirement for an independent audit if it has assets less than $500 million, otherwise it is still subject to FDICIA's requirements.

Figure 2 here

As shown in figure 2, this $500 million threshold is very important for the deregistration decision. Figure 2 estimates a kernel regression of the deregistration decision on the size of the bank. Both panels separately estimate this regression for banks with less than $500 million in assets and banks with more than $500 million in assets. The sample used in Panel A consists of all banks that are newly eligible to deregister from the SEC after the JOBS Act, and Panel B consists of all newly eligible banks that also have between $350 million and $650 million in assets. There is a sharp discontinuity in the deregistration decision at $500 million—the probability of deregistering decreases from 30% to around 6%, a five-fold drop. Panel B shows that this drop is essentially a level shift around the cutoff.

This figure implies that certain accounting standards are of first-order importance in the deregistration decision. In particular, the requirements for an independent audit and for the management's responsibility for the financial reports drive the decision. A manager who must sign off on the financial reports exposes himself to greater litigation risk if the numbers are false. The audit committee has a range of responsibilities, the most primary of

[19] The public float is defined as the market value of the firm's equity that is not owned by insiders, such as executives, directors, or owners with an ownership stake of over 5%.

which are the oversight of the financial reporting process and the hiring of an independent accountant who audits the company[20]. Both of these measures act to raise the cost of accounting manipulation through the company's accruals; neither, though, can constrain firm managers from cutting good investments in order to inflate earnings.

The conclusion of this institutional detail is that there is a subset of banks that are allowed to escape SEC registration, and within this group there is a subset that can further escape certain standard accounting requirements. I therefore present summary statistics in table 4 that cuts along these subsets. Panel A of table 4 shows statistics for all banks in the sample, but split by eligibility to deregister from the SEC as a result of the JOBS Act. Panel B restricts the sample to banks that have less than $500 million in assets because deregistration allows banks with under $500 million in assets to forego accounting requirements. We can see that newly eligible banks in both samples tend to be larger than their counterparts, and they have slightly worse residential real estate portfolios as measured by the fraction of their portfolio that is in nonaccrual. Coinciding with these differences, eligible banks tend to have lower capital ratios. All subsamples have between 0.73-1.1% of their mortgage loan portfolio in restructuring and current, while between 0.35-0.77% of their mortgage loan portfolio was restructured but fell out of compliance with the restructuring.

Table 4 here

E. Other SEC Requirements

While accounting oversight is of first-order importance in the banks' decision to deregister from the SEC after the JOBS Act, this does not necessarily imply that changes in accounting oversight drive the changes in mortgage restructurings after the JOBS Act. It is possible that there is another requirement of SEC registration that does not impact the banks' deregistration decision yet causes banks to restructure more mortgages. For me to claim the effect is caused by accounting oversight, it must be true that other SEC requirements do not directly impact restructurings.

[20] Klein (2002), for example, finds evidence of an increase in earnings management when the audit committee loses independence.

When banks deregister, they also escape the requirement to issue SEC-specific filings. They must still comply with FDIC rules and file quarterly call reports, but they do not need to file annual 10ks. Likewise, banks do not need to file an 8k for every material event, nor do they need to let the public know of changes in ownership structure (either through the large holdings of certain investors or through changes in management's stake via forms D, 3, 4, 5, 13D, 13G, 13F, or 144) or changes in the Board of Directors or executive compensation (Form DEF 14-A). Due to the greater number of mandated disclosures, firms registered with the SEC may be more likely to be sued or prosecuted if they fail to comply with the disclosures. While these SEC-specific requirements can all be classified under the umbrella of "oversight," their implications may be different than if the entire effect comes from the accounting oversight discussed in the previous subsection. It is unclear, though, that these SEC-specific filings would impact a bank's decision to restructure mortgages.

Perhaps the most important effect of SEC registration is its implications for capital issuance. Firms that are not registered with the SEC can only raise capital through particular channels so as to protect uninformed investors. If anything, I would expect that a bank with more difficulty in raising capital would be less likely to restructure mortgages because such restructurings lower the bank's regulatory capital. Thus, my estimates may underestimate the effect of accounting oversight on mortgage restructurings because the change in the cost of raising capital may make restructurings less appealing.

5. Empirical Strategy and Results

A. Eligibility to Deregister

The JOBS Act allowed 200 banks to deregister from the SEC based on their shareholder of record count. Before examining the deregistration decision and its effects, it is useful to study the determinants of a bank's eligibility to take advantage of the new JOBS Act provision. Banks become eligible to deregister based on the number of "shareholders of record" that they have—in particular, banks with between 300 and 1200 holders of record became newly eligible after the JOBS Act. Banks with between 300 and 1200 holders of record (as of their 2011 SEC filings) form my treated group. It is important, therefore, that banks do not manipulate their shareholder count in anticipation of the law.

Table 5 computes the correlation between a bank's shareholder count in 2011 and its count in 2006 conditioning on the bank having fewer than 2000 shareholders in 2006[21]; if these numbers are highly correlated then there is little reason to suspect that banks manipulated their shareholder count so that they would enter my treated group (and thus be able to deregister).

Table 5 here

Table 5 shows that this key variable is highly autocorrelated. Across specifications and subsamples, the estimated autocorrelation ranges from 85% to 97%. Further, the estimates and r-squareds are little improved by adding controls for quadratic functions of size and capital, which are typically important bank characteristics. In fact, among small banks (who are most affected by the JOBS Act), the adjusted r-squared of the simple autocorrelation is 81%. This autocorrelation helps alleviate concerns that some banks manipulate their shareholder of record variable in the years prior to the passage of the JOBS Act.

B. Deregistration Decision and Methodology

My first set of results study the decision to deregister from the SEC and its effects on accounting standards. I first estimate the decision to deregister as:

$$(Deregister * PostJOBS)_{i,t} = \gamma_1(NewlyEligible * PostJOBS)_{i,t} + \gamma_2(NewlyEligible * PostJOBS)_{i,t} * X_{i,2012Q1} + \gamma_3 PostJOBS_t * X_{i,2012Q1} + \gamma_4 * X_{i,t} + \eta_i + \mu_t + \epsilon_{i,t}$$

'Deregister' is a dummy variable equal to one if the bank deregistered from the SEC in the first two quarters after the passage of the JOBS Act, and I interact this with 'PostJOBS'—a dummy equal to one in quarters after the passage of the JOBS Act—to form my dependent variable. 'NewlyEligible' is a dummy variable equal to one if the firm had between 300 and 1200 shareholders of record as of its 2011 SEC filings, thus making it newly eligible to deregister from the SEC under the JOBS Act. 'X' is a vector of covariates including: 'Assets<$500M,' a dummy equal to one if the bank had less than $500 million in assets;

[21] The distribution of shareholders is skewed, with large banks hundreds of thousands of shareholders. Variation at the extremes of the distribution therefore has substantial leverage in the regressions, so I exclude them.

'Log(Assets)'; and 'Capital ratio,' defined as the bank's total equity capital divided by its assets. When I interact X with the 'NewlyEligible*PostJOBS' variable, I fix X as of 2012Q1, the quarter immediately preceding the JOBS Act. For my second-stage results, it is important to not allow this interaction to vary over the post-period because banks may manipulate their book values in order to escape the FDIC's accounting requirements—for example, a bank that is eligible to deregister may want to cut its assets from $501 million to $499 million so that it no longer has to hire an independent auditor. This variation would not be random, so I do not allow the bank's predicted probability of deregistration to increase based on changes within the post-period.

Table 6 here

Table 6 reports the results of this regression. We see that the 'NewlyEligible*PostJOBS' variable is a strong predictor of deregistration, which should not be surprising. Further, in the first three columns we see that 'NewlyEligible*(2012Q1 Assets<$500M)*PostJOBS' is also highly predictive of deregistration—the predicted probability of deregistration increases by 18.4 to 35.3 percentage points for eligible banks below this threshold. Given the discontinuity exhibited in figure 2, this should also not be surprising. Banks that can escape tighter accounting oversight as a result of deregistration from the SEC are substantially more likely to do so.

There is further heterogeneity across banks that are eligible to deregister. We see that 'NewlyEligible *Ln(2012Q1 Assets)*PostJOBS' is strongly negative. This too is in line with figure 2, and consistent with regulatory requirements imposing a fixed cost that is more burdensome for small firms. Additionally, it is precisely small firms that we would expect to want to restructure more mortgages. Evidence suggests that small servicers are better able to respond to the crisis by restructuring more mortgages (Agarwal, Amromin, Ben-David, Chomsisengphet, Piskorski, & Seru, 2012), and we may expect this to be the same of small banks. If eligible bank A has 1% more assets than eligible bank B, then bank A is 10% less likely to deregister in the full sample; this coefficient increases to roughly 25% in the subsample with only small firms.

Finally, 'NewlyEligible*Capital Ratio*PostJOBS' is also strongly negative. Moving up along the interquartile range for capital ratio, a bank is nearly 8 percentage points less likely to deregister in the full sample of eligible banks; this estimate increases to 9

percentage points in the subsample of small banks. Poorly capitalized banks are generally banks with lower quality portfolios, which suggests that they may have more incentive to deregister from the SEC in order to escape the accounting oversight that constrains their restructurings.

The higher probability of deregistration among poorly capitalized banks raises concerns about selection. Banks make the decision to deregister with information that the econometrician does not see, and generally deregistration is associated with less healthy firms (Marosi and Massoud (2007) and Leuz, Triantis and Wang (2008)). Less healthy firms, likewise, may be especially sensitive about changes in their capital; alternatively, less healthy firms may have more opportunities for restructuring troubled loans. Either way, there is an omitted variable associated with the deregistration decision, which will bias ordinary least squares estimates of the effect of deregistration. In order to solve this, I use two-stage least-squares to clean the deregistration decision of unobservables. In particular, I first estimate the first-stage regression above (and shown in table 6):

$$(1) \quad (Deregister * PostJOBS)_{i,t} = \gamma_1 (NewlyEligible * PostJOBS)_{i,t} + \gamma_2 (NewlyEligible * PostJOBS)_{i,t} * X_{i,2012Q1} + \gamma_3 PostJOBS_t * X_{i,2012Q1} + \gamma_4 * X_{i,t} + \eta_i + \mu_t + \epsilon_{i,t}$$

The second stage uses the predicted probability of (Deregister*PostJOBS) from the first-stage to estimate the effect of deregistration on the outcome variable Y:

$$(2) \quad Y_{i,t} = \beta_1 (Deregister * PostJOBS)_{i,t} + \beta_2 * PostJOBS_t * X_{i,2012Q1} + \beta_3 * X_{i,t} + \eta_i + \mu_t + \xi_{i,t}$$

In particular, for each second-stage outcome variable I estimate six two-stage least-squares specifications corresponding to each of the columns in table 6. By systematically adding controls for size and capital, and by using a subsample of small banks, I can observe the stability of my estimates. Due to the important differences across banks that are large, small, well-capitalized, and poorly capitalized, stable estimates across specifications help assuage fears that my treated group is exposed to differential shocks relative my control group.

The identifying assumption is that eligibility to deregister after the JOBS Act (and eligibility interacted with various book measures in certain specifications) is uncorrelated

with changes in a bank's outcome variable Y after the JOBS Act except through its influence on the bank's deregistration decision. Outcome variables include accounting and audit fees, provisions for loan losses, troubled mortgage restructurings, and troubled non-mortgage restructurings.

C. Effects of Deregistration on Accounting

The first outcome variable I study is the bank's quarterly accounting and audit fees. In particular I estimate equation (2) as:

$$Ln(1 + Accounting\ and\ Audit\ Fees)_{i,t}$$
$$= \beta_1(Deregister * PostJOBS)_{i,t} + \beta_2 * PostJOBS_t * X_{i,2012Q1} + \beta_3 * X_{i,t} + \eta_i + \mu_t + \xi_{i,t}$$

The results are shown in table 7.

Table 7 here

We see that deregistration leads banks to cut their audit and accounting fees by 30 to 55% depending on the specification. This result is consistent with the discontinuity in deregistration probability shown in table 2: the jump in probability for banks below $500 million in assets suggests that a primary reason banks deregister is so that they escape audit requirements. The cost savings for the average bank in the treatment group is approximately $20,000 per quarter; for the sample of small banks, this estimate is between $12,000-18,500 per quarter. These estimates tend to line up with statements from banks that deregistered. For example, the president of John Marshall Bank, which deregistered from the SEC, estimated that the company would save $100,000 annually[22]; the CFO of Coastal Banking Company estimated savings of $200,000[23].

For all regressions I also estimate diagnostics. Of particular interest is the Hansen J-test of overidentifying restrictions and the Kleibergen-Paap Wald F statistic, which is equivalent to the Angrist-Pischke F statistic because I only have one endogenous regressor. In some specifications I have multiple instruments because I interact 'NewlyEligible*PostJOBS' with variables such as size and capital. This allows me to perform the J-test of overidentifying restrictions, the null of which is that the instruments are invalid. As seen in table 7, the J-statistic easily rejects the null. The F statistic measures the

[22] See "100 Banks End Reporting to SEC Under New Law," The Washington Post, January 30, 2013.
[23] See "Coastal Banking Company Announces Voluntary Deregistration from the SEC," Globe Newswire, May 2, 2012.

strength of the instrumental variables—weak instruments can lead to very biased estimates. A rule of thumb in the literature is that an F statistic of 10 corresponds to a relatively strong instrument(Stock, Yogo, and Wright (2002)), and all of my specifications easily pass this threshold.

I next examine the bank's accrual behavior. If deregistration allows banks to escape accounting oversight (either by firing their auditor, disbanding their audit committee, or escaping the responsibility and liability of attesting to the financials—see table 3), then they may have more flexibility to manipulate their accruals. In particular, I expect banks to make fewer provisions for loan losses in order to increase their capital position. A bank's provision for loan losses is an estimate the bank makes regarding how much of the portfolio will be uncollectible; this estimate is inherently subject to managerial discretion, but accounting oversight may tend to force banks to be more conservative than they would like, thereby decreasing earnings[24]. I estimate equation (2) as:

$$Ln(1 + Provisions\ for\ Loan\ Losses)_{i,t}$$
$$= \beta_1(Deregister * PostJOBS)_{i,t} + \beta_2 * PostJOBS_t * X_{i,2012Q1} + \beta_3 * X_{i,t} + \eta_i + \mu_t + \xi_{i,t}$$

The results are shown in table 8.

Table 8 here

While estimates tend to be somewhat noisy across specifications, each column in table 8 points to very large reductions in loss provisioning as a result of deregistration. For the full sample, deregistration leads to reductions in loss provisions of 50-75%; this estimate ranges from 40-75% for the subsample of small banks. Using the J-test, all specifications reject the null of invalid instruments at the 5% level, and only column 6 fails to reject the null at the 10% level.

This reduction in loss provisioning can have a large impact on a bank's capital ratio. For example, among the subsample of small banks, banks tend to lend about two-thirds of their portfolio, and they take quarterly losses of about 0.2% of their loans. This implies their capital is lowered each quarter through losses by roughly 2/3*0.2%=0.13% of assets. Banks tend to have capital ratios of about 10%, so each year their capital ratio is lowered about 5% due to losses, and obviously this will be a larger number for banks facing

[24] E.g. Dahl, O'Keefe and Hanweck (1998) and DeBoskey and Jiang (2012) find auditors decrease income-increasing accruals.

distress—11.5% for banks at the 75th percentile of losses and up to 50% of the capital ratio per year for banks at the 99th percentile of losses. Banks that can lower their loss provisions by 50%, then, face less pressure on their capital ratio.

These results demonstrate a tight connection between the deregistration decision and accounting oversight. Accounting oversight is the most important determinant in the decision to deregister, and deregistration is associated with a large cut to accounting expenses as well as an increase in income-increasing accruals as banks make lower provisions for loan losses.

D. Effects of Accounting Oversight on Real Investment

My second set of results looks at the effect of accounting standards on real investment. In particular, I look at a bank's level of troubled mortgage restructurings as it faces a shock to its accounting standards. As mentioned in the section on institutional details, troubled debt restructurings (TDRs) entail a large hit to earnings, and are akin to expenditures on R&D. If we can, by loosening accounting oversight, relax the bank's pressure to manage capital, then we may be able to induce more TDRs.

As a first-pass, I estimate with OLS the following equation:

$$\frac{MortgageTDR_{i,t}}{(2010\ Mortgage\ Portfolio)_i} =$$

$$= \beta_1(Deregister * PostJOBS)_{i,t} + \beta_2 * PostJOBS_t * X_{i,2012Q1} + \beta_3 * X_{i,t} + \eta_i + \mu_t + \xi_{i,t}$$

To sharpen the analysis, I restrict the sample to banks a capital ratio in 2012Q1 less than 8.5%[25], which is approximately the bottom quartile for banks that are affected by the JOBS Act. The results are reported in table 9.

Table 9 here

Banks that deregister after the JOBS Act increase their mortgage restructurings by 0.54% to 0.82% of their mortgage portfolio. This is a large increase given baseline restructurings of 0.88% for the full sample and 1.14% for the sample of small banks. Further, I can compare these estimates to the banks' levels of nonaccrual mortgages. A loan enters nonaccrual status if the bank declares that part of the loan will go uncollected—these are the bad loans on the bank's books. For banks affected by the JOBS Act, the

[25] Estimates for the full sample are one-third to one-half the size of the low-capital subsample.

average fraction of the mortgage portfolio in nonaccrual is 2.5%. Thus, if a bank restructures 0.54-0.82% of its mortgage portfolio, it could work through a substantial portion of its troubled loans.

As mentioned previously, the OLS estimates may be biased due to unobservables associated with the decision to deregister from the SEC. The direction of the bias is unclear as banks that deregister may have more loans to restructure, but also may have worse capital and more incentive to refrain from restructurings. For this reason I instrument for the decision to deregister with the bank's eligibility to deregister following the JOBS Act using equation (1) above.

The exclusion restriction requires that the instrument does not directly affect mortgage restructurings except through the deregistration decision. To examine the exclusion restriction and triangulate the source of variation in mortgage TDRs, I plot mortgage TDRs by group in figure 3. There are four groups in Panel A: banks that are eligible to deregister and have less than $500 million in assets, which we know are very likely to deregister from the SEC according to figure 2 and table 6; banks that are eligible to deregister from the SEC but have more than $500 million in assets; banks with assets less than $500 million that are not affected by the JOBS Act's change in SEC registration requirements; and banks with more than $500 million in assets that are not affected by the JOBS Act's changes. We can see that up through the last quarter of 2011 each of these groups trended similarly with regard to their mortgage TDRs. This helps alleviate concerns about omitted variables that affect only banks that are likely to deregister. Further, after the JOBS Act passes the House of Representatives on November 2, 2011, we see that the affected banks begin to restructure more loans. Meanwhile, none of the other three banks change their TDRs. This further helps alleviate concerns about omitted variables: if there was a shock to public banks that drives a change in mortgage restructurings, we would expect to see the eligible but large banks also change their TDRs. If there was a concurrent shock to small banks, on the other hand, we would expect to see TDRs increase for small banks that were not affected by the JOBS Act. Because there is only a change for banks that are directly impacted by the JOBS Act, any omitted variable unrelated to the JOBS Act would have to be peculiar in its effects.

Panel B plots the same figure but restricts the sample to banks that have equity that trades OTC or on an exchange. If there was a concurrent shock to small banks with a diffuse shareholder base, we would expect the small banks that trade OTC to also be affected. This placebo group exhibits no noticeable change in TDRs at the passage of the JOBS Act.

Panel C tightens the internal validity of the figure by repeating Panel A but only for the subsample of banks that have between $300 and $700 million in assets. This range roughly coincides with the banks between the 20th percentile and 60th percentile of those eligible to deregister from the SEC. By tightening the size threshold, we can see if there is an omitted variable that only affects small banks that are also eligible to deregister from the SEC. The fact that Panel C shows a similar increase in TDRs for the highly-affected group of banks (and nobody else) implies that it is unlikely that there is an omitted variable along these dimensions.

Panels A-C show that banks that are likely to deregister after the JOBS Act trend similarly to a variety of control groups prior to the passage of the law. Restructurings only increase for the treated group after the JOBS Act passes the House of Representatives. Any omitted variable would need to precisely coincide with both my treated banks, which are eligible to deregister from the SEC and are small, and with the passage of the JOBS Act.

Another way to look for my result is in the level of accounting discretion. Panels A-C shows that my treated group responds to a shock in accounting discretion by restructuring more loans, but we may expect banks that have more accounting discretion to restructure more loans prior to the JOBS Act. To examine this, Panel D scales restructurings by the bank's nonaccrual residential real estate loans rather than its total residential real estate portfolio. In this way Panel D roughly controls for the quality of the loan portfolio. We see that banks that are subject to neither the SEC or FDICIA accounting oversight requirements (those banks that are not registered and have less than $500 million in assets) restructure a greater fraction of their troubled loans before the JOBS Act. We also see that banks subject to both the SEC and FDIC requirements (banks that are registered and have over $500 million in assets) always have the lowest level of restructurings relative their nonaccrual portfolio. Finally, we see that the treated group of banks that can escape oversight (banks that are eligible to deregister from the SEC and have less than $500

million in assets) appear to "catch up" to the least regulated companies after the passage of the JOBS Act.

Figure 3 here

If the instruments are valid, then we can interpret table 10 as the causal effects of accounting standards on mortgage TDRs. Each column of table 10 corresponds to the first-stage regression in its matching column from table 6. We see that TDRs increase by 0.7-1.1% of the bank's mortgage portfolio. Average TDRs essentially double following deregistration; equivalently, TDRs increase by about one half of the standard deviation of the treated group, and between 30-50% of the average nonaccrual balance. In short, the increase in restructurings is large relative typical levels of restructurings as well as the size of non-performing mortgages. We also see that the choice of instruments and covariates does not affect the estimates much, though adding controls for size and capital tend to make the estimates stronger. Finally, each specification easily rejects the J-test of invalid instruments as well as the F test for weak instruments.

Table 10 here

Further, if accounting oversight interacts with capital requirements, we would not expect the effects of a shock to accounting oversight to be uniform across all banks. Rather, we would expect banks that are more constrained to react more strongly. To test this, I estimate the prior equation for the subsample of banks that have a capital ratio in 2012Q1 less than 8.5%, which corresponds to the bottom quartile for the banks with a high probability of deregistering. Estimates are reported in table 11.

Table 11 here

We see that the estimates are nearly twice as large for the low-capital subsample. Further, the estimates do not vary across specifications and the controls are all insignificant at the 5% level, though there is a larger discrepancy in estimates between the full sample and the sample with only small banks. The instruments are weaker when estimated over the low-capital subsample, which suggests that there are potentially greater problems with omitted variables for the low-capital banks because the instruments explain less of the variation in the deregistration decision for this subsample, confirming the importance of using instruments to clean the deregistration decision of unobservables. The estimates imply that banks in the bottom quartile of the capital ratio respond particularly

strongly to the extra accounting discretion. This result is consistent with poorly-capitalized banks facing the most pressure to manage their regulatory capital prior to the JOBS Act. Finally, I can compare these estimates to the OLS estimates from table 9, which was estimated over the same subsample of banks. The IV estimates are roughly 2.5 times as big as the OLS estimates, suggesting that the banks that choose to deregister face particularly strong capital constraints and thus the OLS estimates of deregistration are biased downward.

As a falsification test, I repeat table 11 but roll the sample forward one year. That is, I pretend that the year prior to the JOBS Act is the treatment period, and 2009Q2-2011Q1 serve as the pre-period. If there is a pre-trend in mortgage restructurings for my treated group, then I would expect to find the trend in this sample. Table 12 reports the results. The estimates for 'Dereg*placebo' are all insignificant and well below the corresponding estimates from table 11, suggesting that my treated banks did not trend apart from the control banks.

Table 12 here

As a final test, I repeat table 11 but instead use non-mortgage TDRs. While the crisis presented a particularly large opportunity for restructuring troubled mortgages, it also created an opportunity for restructuring other debt. Table 13 reports these results. I find that the estimates are roughly 80% of the estimates in table 11 for the full sample, and about 65% of the table 11 estimates for the small banks, though the estimated t-statistics in table 13 are only around 1.5. Regardless, these are large relative the baseline level of restructurings for non-mortgage debt.

Table 13 here

6. Discussion and Conclusion

This paper examines one cost of tight accounting oversight. In particular, accounting oversight interacts with the bank's desire to manage earnings, causing banks to substitute accrual management for real earnings management when oversight is relaxed. In my setting, banks make fewer provisions for loan losses but restructure more mortgages when they can escape the SEC's requirement for an independent audit.

My results have further implications for the literature on mortgage restructurings. We know that there is substantial servicer-specific variation in mortgage restructurings (Agarwal, Amromin, Ben-David, Chomsisengphet, Piskorski, & Seru, 2012) but it is less clear what drives the across-servicer variation. One potential factor is the ownership of the servicer—if the servicer is owned by a bank that is sensitive to its reported earnings or capital, then the bank may not invest in the training or staff needed for the servicer to modify loans. More generally, contracts between the owner of the loan and the servicer may vary by the owner's desire to manage earnings.

Relatedly, my results suggest that agency and coordination problems associated with securitization are underestimated in the literature. If securitized loans are traded and thus more likely to be marked-to-market on a bank's balance sheet, then the marginal hit to earnings from a troubled debt restructuring is low relative a portfolio loan that is held at historical cost[26]. The observed effect of securitization on restructurings is the total effect of agency and coordination problems in addition to the difference in accounting incentives; because the accounting incentives make restructurings more likely for securitized loans, the observed difference between securitized and portfolio loans is an underestimate of the effect stemming from agency and coordination problems. More generally, my results highlight one scenario where fair-value accounting may help solve a friction during the crisis[27]. If all mortgages are marked-to-market, then the bank cannot manage earnings by restructuring fewer mortgages.

Finally, my results support calls for macroprudential capital regulation, particularly procyclical capital requirements. An unfortunate consequence of capital requirements is that they may cause financial intermediaries to distort their lending during a downturn in order to inflate their capital (Hanson, Kashyap, & Stein, 2011). Recently, there has been substantial empirical evidence that financial intermediaries "reach for yield" (Rajan, 2005) — Hanson and Stein (2014) find that banks shift into longer-maturity debt securities when

[26] The bias works in the same direction if the average owner of securitized loans has less incentive to manage earnings than banks.

[27] There is a large debate about relative costs and benefits of fair-value accounting, especially when interacted with capital requirements during the crisis. Merrill, Nadauld, Stulz and Sherlund (2012) and Heaton, Lucas and McDonald (2010), for example, discuss the potential for fair-value rules to destabilize the financial system, while Ellul, Jotikasthira, Lundblad and Wang (2014) find that historical-cost accounting leads to gains trading. My results suggest that historical-cost accounting can prevent mortgage restructurings.

the yield curve steepens and Stein (2013) suggests this as a primary mechanism for the transmission of monetary policy; Jimenez, Ongena, Peydro and Saurina (2014) show that poorly capitalized banks grant more loans to riskier customers when the overnight interest rate is lower, and these loans have fewer protective covenants; and Becker and Ivashina (2014) observe that insurance companies, conditioning on the bond rating, shift into bonds with higher yields and higher CDS spreads, and this effect is bigger for poorly capitalized companies. If this "reach for yield" is driven by capital requirements, then the distortions will be worse during a downturn. By loosening accounting oversight and letting banks make fewer provisions for loan losses, the JOBS Act effectively loosened the banks' capital requirement[28] and led to an increase in mortgage restructurings. Procyclical capital requirements, which would require banks to have high capital ratios during booms but allow lower capital ratios during busts, would have plausibly led to a higher level of restructurings. In this way my results suggest that procyclical capital requirements may prevent other distortions stemming from capital requirements.

[28] The duality between accounting standards and capital requirements is explored in Heaton, Lucas and McDonald (2010).

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Appendix A: Call report data items

This appendix defines variables computed from the FDIC's call report data. Income data is reported year-to-date, but the analysis uses quarterly data. The following definitions reflect adjusted income data for the second, third, and fourth quarters by subtracting the previous quarter's value; this adjustment is indicated by the word 'quarterly' preceding the data item.

Assets = total assets (RCON 2170)

Loans = total loans and leases, net of unearned income (RCON 2122)

Residential real estate loans (Res. RE Loans) = loans secured by 1-4 family residential properties = Revolving, open-end loans secured by 1-4 residential properties and extended under lines of credit + closed-end loans secured by first liens on 1-4 residential properties + closed-end loans secured by junior liens on 1-4 residential properties (RCON 1797 + RCON 5367 + RCON 5368)

Accounting and Auditing Fees = Accounting and auditing expenses (quarterly RIAD F556)

Residential real estate nonaccrual non-performing loan ratio (Res. RE Nonacc. NPL Ratio) = nonaccrual loans secured by 1-4 family residential properties divided by 2010 Res. RE Loans = nonaccrual loans secured by revolving, open-end loans secured by 1-4 family residential properties and extended under lines of credit + closed end loans secured by first liens on 1-4 family residential properties + closed end loans secured by junior liens on 1-4 family residential properties divided by 2010 Res. RE Loans (RCON 5400 + RCON C229 + RCON C230)/(2010 value of RCON 1797 + RCON 5367 + RCON 5368)

Capital Ratio = total equity capital divided by total assets (RCON 3210/RCON 2170)

Return on assets (ROA) = net income divided by assets (quarterly RIAD 4340/RCON 2170)

Residential real estate charge-off ratio (Res. RE Charge-off Ratio) = Net charge-offs on loans secured by 1-4 family residential properties = net charge-offs on loans secured by revolving, open-end loans secured by 1-4 family residential properties and extended under lines of credit + closed end loans secured by first liens on 1-4 family residential properties + closed end loans secured by junior liens on 1-4 family residential properties divided by 2010 Res. RE Loans (quarterly RIAD 5411 – quarterly RIAD 5412 + quarterly RIAD c234 – quarterly RIAD c217 + quarterly RIAD c235 – quarterly RIAD c218)/ (2010 value of RCON 1797 + RCON 5367 + RCON 5368)

Provision for loan loss ratio = provision for loan and lease losses divided by 2010 value of loans (quarterly RIAD 4230 / 2010 value of RCON 2122)

Res. RE restructurings, current = loans secured by 1-4 family residential properties that are in troubled debt restructuring and in compliance with modified terms, divided by 2010 value of Res. RE Loans (RCON F576 / (2010 value of RCON 1797 + RCON 5367 + RCON 5368))

Res. RE restructurings, NPL = loans secured by 1-4 family residential properties that are in troubled debt restructuring and not compliance with modified terms, divided by 2010 value of Res. RE Loans ((RCON F661 + RCON F662 + RCON F663)/ (2010 value of RCON 1797 + RCON 5367 + RCON 5368))

Non-Res. RE restructurings, current = loans that are in troubled debt restructuring and in compliance with modified terms but are not secured by 1-4 family residential properties, divided by 2010 value of loans not secured by 1-4 family residential properties. Before 2011, this is computed as RCON 1616/ (2010 value of Loans – Res. RE Loans). After 2011 RCON 1616 is divided into different categories of loans, so the calculation is: (RCON K158 + RCON K159 + RCON K160 + RCON K161 + RCON K162 + RCON K 256 + RCON K165)/ (2010 value of Loans – Res. RE Loans).

Non-Res. RE Restructurings, NPL = loans that are in troubled debt restructuring and not compliance with modified terms and are also not secured by 1-4 family residential properties, divided by 2010 value of loans not secured by 1-4 family residential properties. Before 2011, this is computed as (RCON 1658 + RCON 1659 + RCON 1661)/ (2010 value of Loans – Res. RE Loans). After 2011 these restructurings are divided into different categories of loans, so the calculation is: (RCON K105 + RCON K106 + RCON K107 + RCON K108 + RCON K109 + RCON K110 + RCON K111 + RCON K112 + RCON K113 + RCON K114 + RCON K115 + RCON K116 + RCON K117+ RCON K118 + RCON K119 + RCON K257 + RCON K258 + RCON K259 + RCON K126 + RCON K127 + RCON K128)/ (2010 value of Loans – Res. RE Loans).

Figure 1: Bank deregistrations by quarter

This figure plots the number of banks that deregister from the SEC in a given quarter from 2002 through August 2012. Data comes from SNL financial. To deregister, banks file a form 15 with the SEC certifying that the security does not have more shareholders of record than is allowable for a private bank. Prior to the passage of the JOBS Act, this threshold was 300. After the JOBS Act passed in April 2012, banks with as many as 1200 holders of record are allowed to deregister from the SEC.

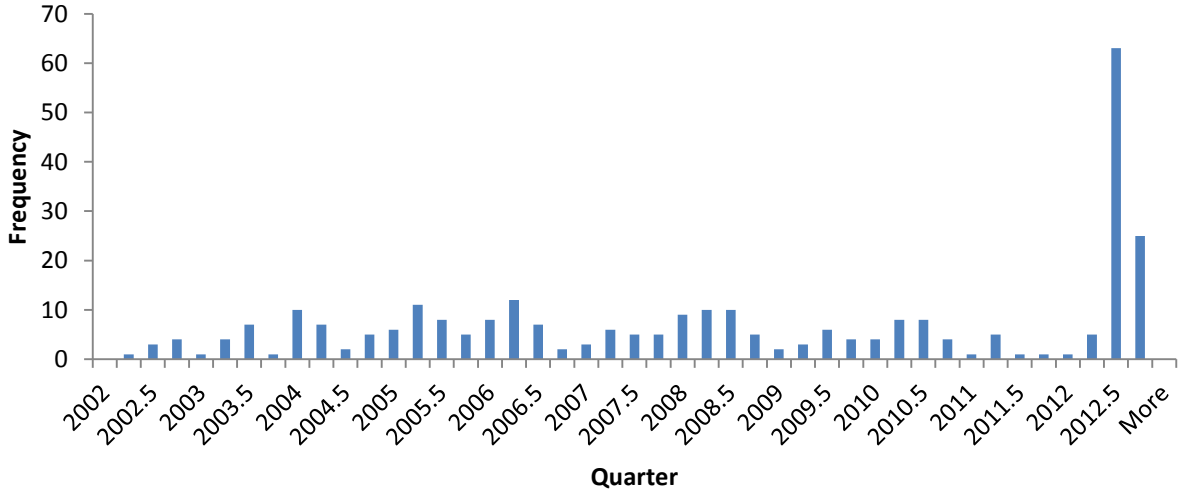
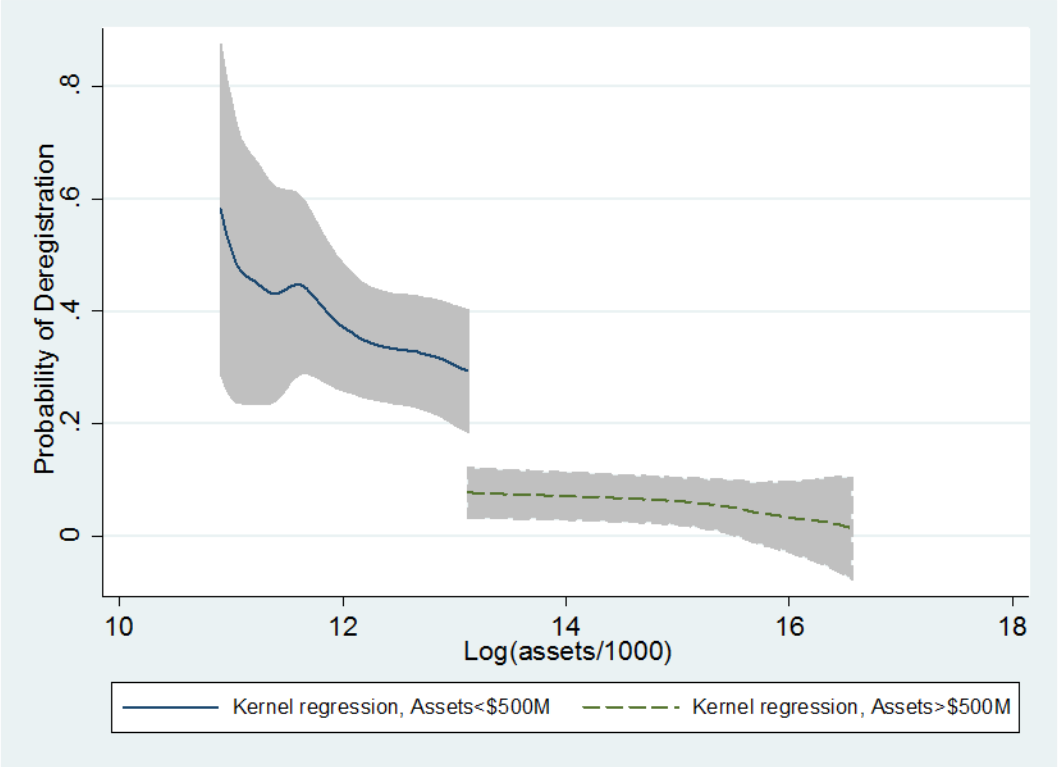


Figure 2: Deregistration decision as function of size

This figure plots the predicted probability of deregistration as a function of size among banks that are newly eligible to deregister from the SEC after the JOBS Act (that is, banks with shareholders of record of 300-1200). The predicted values are the result of a kernel regression of deregistration on the log of assets; I separately estimate the function for banks with assets above $500 million and banks with assets below $500 million. Panel A shows the estimate and confidence interval for all banks, while panel B only shows banks with assets between $350-650 million.

Panel A: All Banks



Panel B: Banks with Assets between $350-650 Million

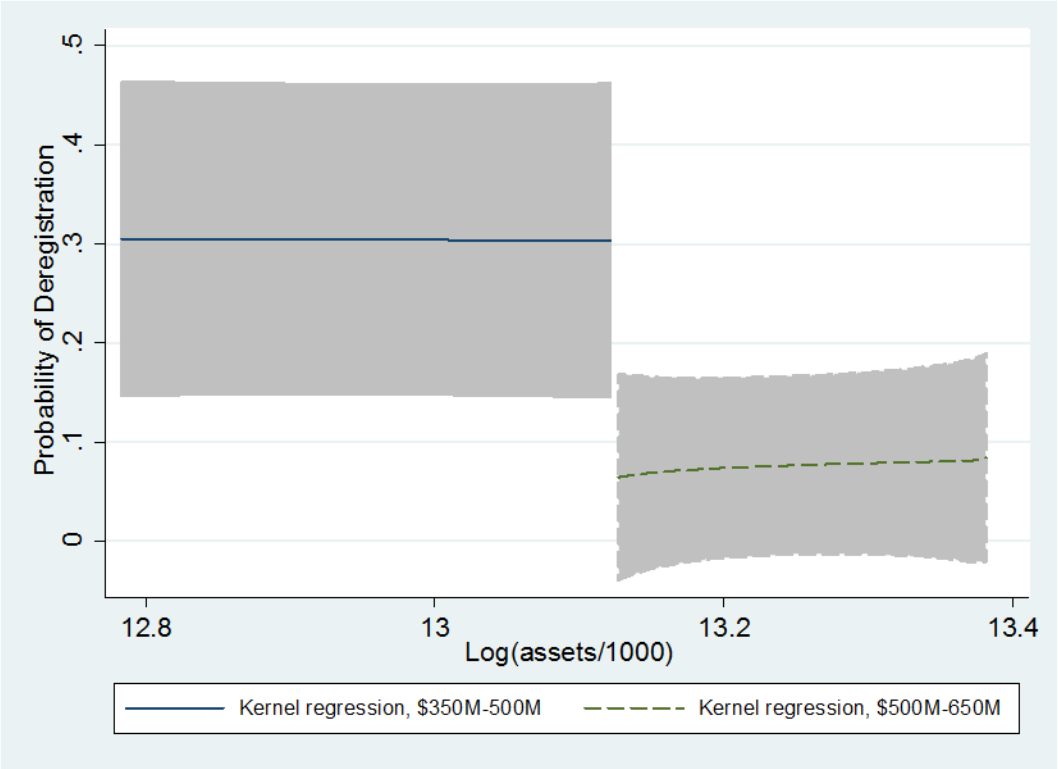
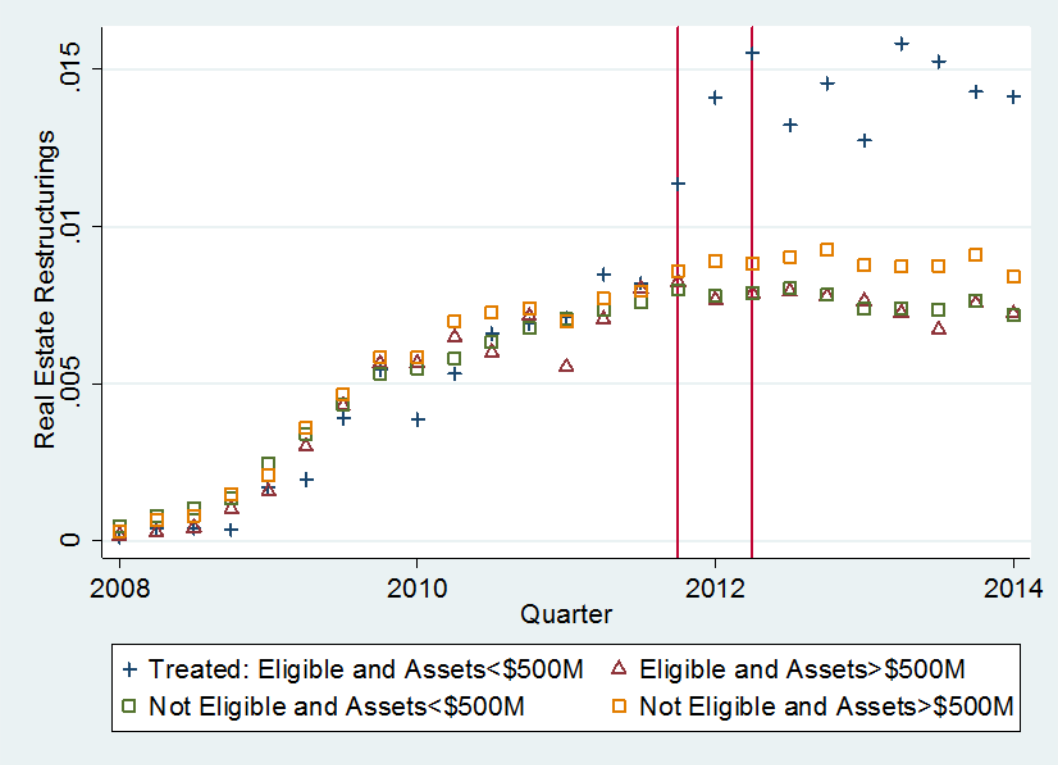


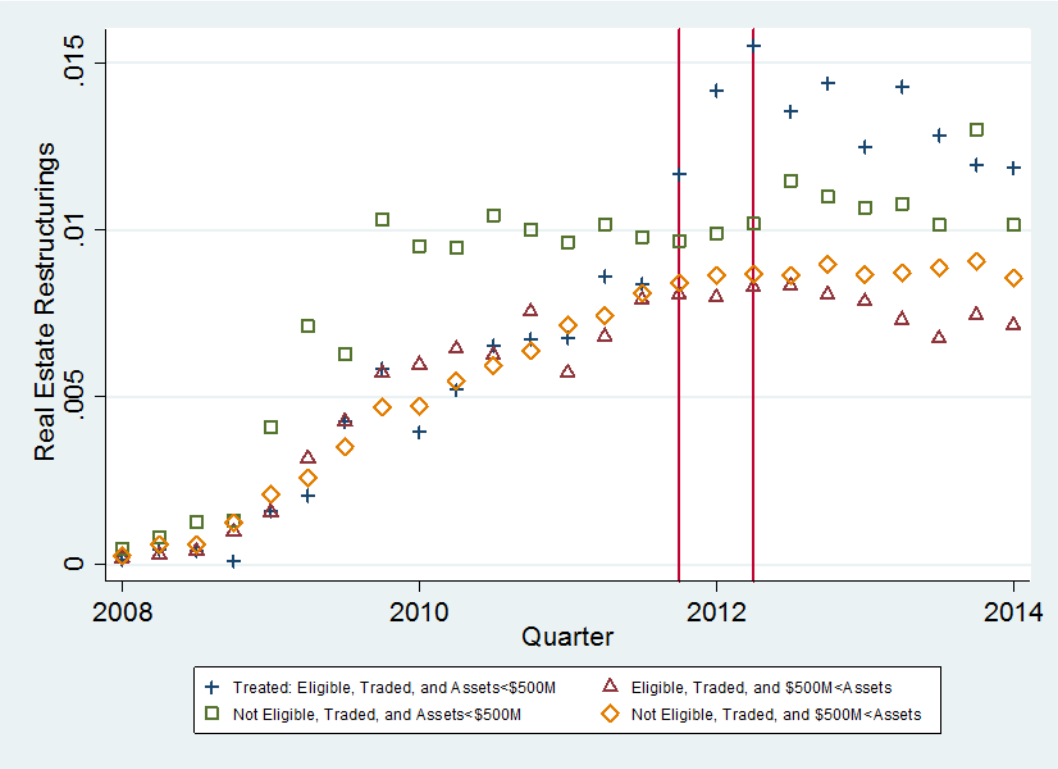
Figure 3: Loan restructurings over time by group

This figure plots the level of residential real estate loan restructurings for each quarter across three groups. The y-axis is the group average of the banks' loans secured by 1-4 family residential properties that are in troubled debt restructuring and in compliance with modified terms, divided by 2010 value of Res. RE Loans (RCON F576 / (2010 value of RCON 1797 + RCON 5367 + RCON 5368)). 'Eligible' banks have between 300 and 1200 holders of record as of their 2011 SEC filings; 'Ineligible' are banks that do not file with the SEC or have fewer than 300 shareholders or more than 1200 shareholders. A bank is 'Traded' if it has trade information in Datastream—that is, it either trades on a major exchange or in the over-the-counter markets. The first vertical line indicates the quarter when the new deregistration thresholds passed the House of Representatives by a vote of 420-2; the second vertical line indicates passage of the JOBS Act, which officially changed the deregistration threshold. Panel A breaks the entire sample into groups by eligibility and asset size; Panel B restricts the sample to banks that are either eligible or traded; Panel C restricts the sample by size; Panel D accounts for differing loan quality by scaling restructurings by the bank's 2010 value of nonaccrual Res. RE Loans so that the y-axis is RCON F576/(RCON 5400 + RCON C229 + RCON C230).

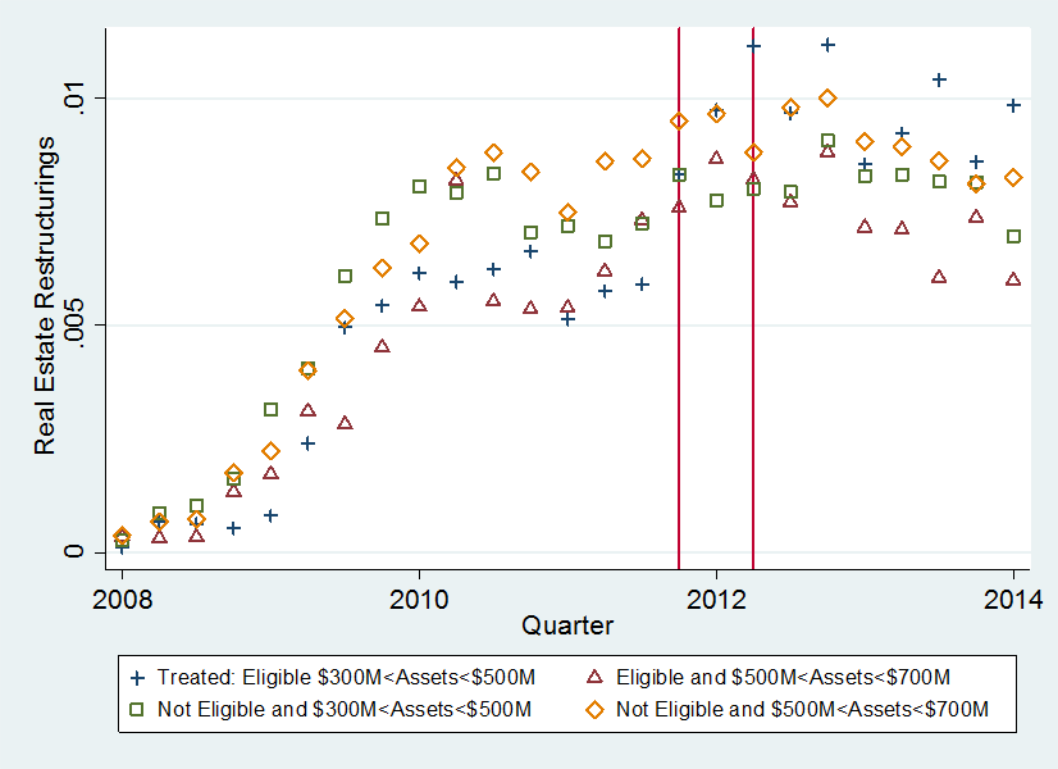
Panel A: All banks



Panel B: Traded banks



Panel C: Banks with assets between $300 million and $700 million



Panel D: Scaling by nonaccrual portfolio

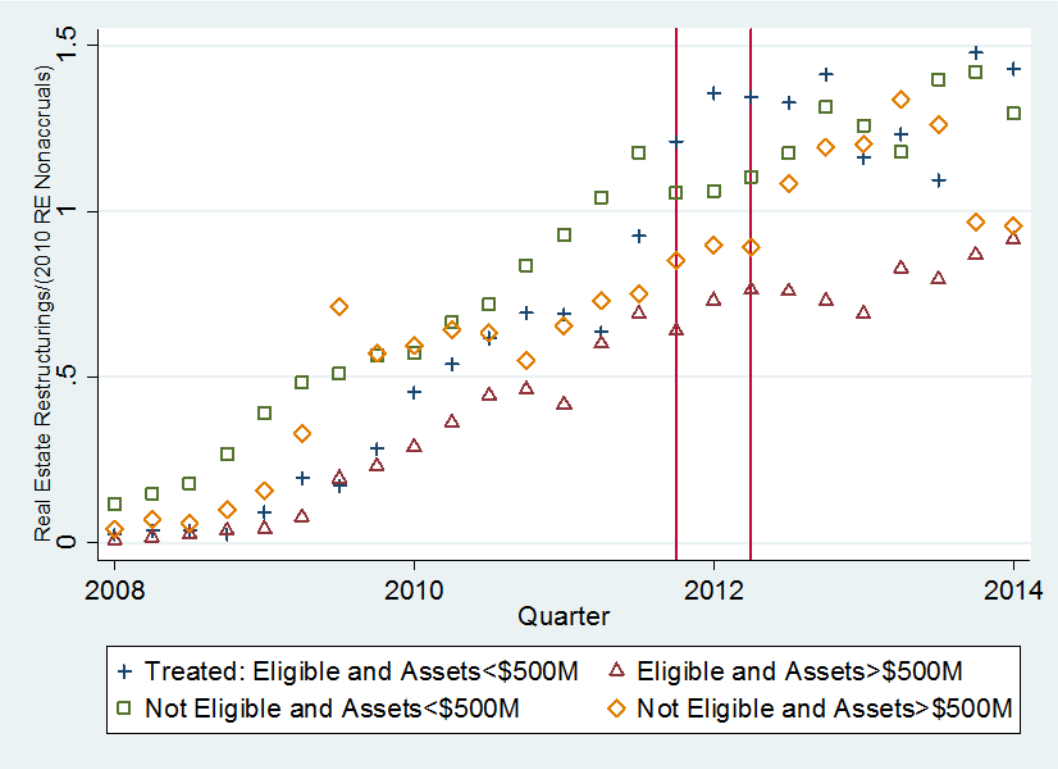


Table 1: Key provisions of JOBS Act

1.
    a. For non-banks, increases SEC registration threshold from 500 holders of record to 2000, but requires no more than 499 to be "accredited investors."[29]
    b. For banks, the SEC registration threshold is lifted from 500 to 2000. Additionally, the threshold for deregistration is lifted from 300 to 1200 holders of record
2. Repeals ban on "general solicitation" for issuers who take advantage of Rule 506 of Regulation D. This rule allows issuers to forego SEC registration as long as they only sell to sophisticated investors with certain limitations.
3. Exempts certain forms of "crowdfunding" from registration requirements. Private companies can raise up to $1 million each year from unsophisticated investors, but each investor can invest at most 10% of their income each year, and often much less depending upon income.
4. Creates "IPO on-ramp" for "emerging growth companies (EGC)" (companies with less than $1 billion in revenue or public float less than $700 million). These companies only need to provide two years of audited financials when going public instead of three years of history. EGCs can also "test the waters" by making pre-filing offers to investors, and can make confidential filings with the SEC to begin the registration process. Additionally, EGCs can forego Sarbanes-Oxley requirements for auditor attestation of internal controls.
5. Allows Regulation A offerings to increase from $5 million to $50 million. These offerings require certain periodic disclosures with the SEC, but this disclosure is less than other public companies.

[29] Some implications of this change can be found in Bruggemann, Kaul, Leuz and Werner (2013)

Table 2: Key dates for identification strategy

1. April 1, 2009: Start of sample used for falsification test
2. April 1, 2010: Start of main sample
3. March 10, 2011: Sen. Kay Bailey Hutchison (R-TX) introduces S. 556, which raises the SEC registration threshold to 2000 holders of record and allows banks to deregister if they have less than 1200 holders.
4. **May 24, 2011**: Rep. James Himes (D-CT) and James Womack (R-AK) introduce H.R. 1965, which raises the SEC registration threshold to 2000 holders of record and allows banks to deregister after their number of holders drops below 1200.
5. June 14, 2011: Rep. David Schweikert (R-AR) introduced the Private Company Flexibility and Growth Act (H.R. 2167), which raises the shareholder threshold necessitating SEC registration from 500 to 1000. The bill had bipartisan support and 27 cosponsors.
6. September 21, 2011: American Bankers Association testifies before House and releases statement in support of H.R. 1965 and H.R. 2167.
7. **November 2, 2011**: H.R. 1965 passes House of Representatives with vote of 420-2.
8. November 8, 2011: Sen. Pat Toomey (R-PA) introduced the Private Company Flexibility and Growth Act (S. 1824), which increases the shareholder threshold for SEC registration to 2000; allows banks to suspend SEC reporting if the number of holders of record drops below 1200.
9. February 24, 2012: Sen. Benjamin Quayle (R-AZ) introduced the Capital Expansion Act (H.R. 4088) which raises the shareholder threshold for banks to 2000 and allows deregistration at 1200.
10. March 1, 2012: Rep. Eric Cantor (R-VA) introduces H.R. 3606, the "Jumpstart Our Business Startups Act," which combines six bills, including H.R. 2167 and H.R. 4088. The bill raises the registration threshold to 2000 holders and allows deregistration below 1200 holders.
11. March 8, 2012: JOBS Act passes House of Representatives by 390-23.
12. **March 22, 2012**: Slightly modified JOBS Act passes the Senate by 73-26.
13. March 27, 2012: Modified JOBS Act passes the House of Representatives by 380-41.
14. March 31, 2012: End of period used for falsification tests.
15. April 5, 2012: JOBS Act signed into law. Provisions regarding SEC registration requirements take effect immediately.
16. April 9, 2012: Farmers Bank of Willards becomes the first bank to deregister under the JOBS Act.
17. March 31, 2014: End of post-JOBS act period.

Table 3: Comparison of SEC accounting standards and FDICIA standards

This table compares accounting standards under SEC and FDIC regulators. Both the SEC and the FDIC have similar standards, but they use different criteria for determining which banks need to comply with a given standard. Standards for the FDIC are the result of the FDIC Improvement Act of 1991 ('FDICIA'), and these standards are determined by bank size. SEC standards are set by Sarbanes-Oxley Act of 2002; this act uses a firm's equity value to determine reporting requirements. A comparison of these standards can be found in Williams (2006); I also update the SEC's requirement for auditor attestation of internal controls based on changes codified in the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. In particular, Dodd-Frank permanently exempted firms with a public float below $75 million from the auditor attestation requirements of Sarbanes-Oxley.

Reporting Requirement	SEC condition	FDICIA condition
Form audit committee with a majority of outside directors to oversee annual audit by independent accounting firm.	All registered firms	Assets > $500 million
Statement of management's responsibility for financial reports.	All registered firms	Assets > $500 million
Management report on effectiveness of internal controls.	All registered firms	Assets > $1 billion
Auditor attestation of internal controls' effectiveness and management's report	Public float > $75 million, ie an "accelerated filer" or "large accelerated filer"	Assets > $1 billion

Table 4: Summary statistics

This table shows the distribution of the variables used in this paper; variables are defined in the appendix table 1. Panel A shows the distribution for all banks; panel B shows the distribution for banks that have less than $500 million in assets. Each panel splits the sample into two groups – those banks that are newly eligible to deregister under the JOBS Act (ie they are registered with the SEC in 2011 and have between 300 and 1200 holders of record) and banks that are not newly eligible.

Panel A: All banks

Variable	Newly Eligible?	Mean	Std. Deviation	P1	P10	P25	P50	P75	P90	P99	N
Assets	No	593,700	1,931,429	12,155	41,156	79,054	161,430	352,109	868,856	13,822,574	99,481
	Yes	1,118,315	1,870,041	80,432	206,078	355,430	614,423	1,152,288	1,993,696	12,729,816	3,539
Loans	No	369,545	1,219,586	0	19,435	43,380	98,210	221,929	553,602	7,726,001	99,481
	Yes	751,597	1,326,464	41,912	137,468	229,872	407,021	737,267	1,292,872	9,056,098	3,539
Res. RE Loans	No	94,290	283,749	0	2,682	9,178	25,424	62,054	162,921	1,832,553	99,481
	Yes	188,172	264,730	0	33,564	68,316	119,724	199,936	338,044	1,565,876	3,539
Accounting and Audit Fees	No	25	43	-32	0	0	12	33	61	240	99,481
	Yes	58	69	-54	0	0	42	89	150	291	3,539
Age	No	75	45	3	9	29	88	109	125	159	98,275
	Yes	69	47	4	11	22	77	108	127	163	3,532
Shareholders, 2006	No	9,688	32,420	143	359	1,245	1,923	4,100	11,565	225,105	3,821
	Yes	766	521	143	400	519	663	949	1,160	2,450	2,491
Shareholders, 2011	No	7,374	22,472	143	248	1,378	2,095	3,976	11,301	191,500	4,217
	Yes	688	241	308	376	484	650	877	1,051	1,193	3,539
Deregistered after JOBS Act	No	0.0062	0.0783	0	0	0	0	0	0	0	99,481
	Yes	0.2015	0.4012	0	0	0	0	0	1	1	3,539
Traded on Datastream (OTC included)	No	0.1065	0.3085	0	0	0	0	0	1	1	99,481
	Yes	0.8991	0.3012	0	0	1	1	1	1	1	3,539

Res. RE Nonacc. NPL Ratio	No	0.0192	0.0298	0	0	0	0.0086	0.0239	0.0507	0.1562	96,953
	Yes	0.0252	0.0271	0	0.0028	0.0077	0.0167	0.0317	0.0587	0.1316	3,499
Capital Ratio	No	0.1141	0.076	0	0.0763	0.089	0.1026	0.122	0.1506	0.4381	96,953
	Yes	0.1017	0.0315	0	0.0754	0.0876	0.0993	0.116	0.1358	0.1941	3,499
ROA	No	0.0016	0.0038	-0.0138	-0.001	0.0008	0.0019	0.003	0.0043	0.0141	99,481
	Yes	0.0012	0.0034	-0.0144	-0.0011	0.0008	0.0017	0.0025	0.0032	0.0069	3,539
Res. RE Chargeoff Ratio	No	0.001	0.0047	-0.001	0	0	0	0.0006	0.0025	0.0148	99,481
	Yes	0.0013	0.0027	-0.0006	0	0	0.0004	0.0016	0.0035	0.013	3,539
Provision for loan loss ratio	No	0.0021	0.0493	-0.0013	0	0	0.0006	0.0016	0.0037	0.0175	91,031
	Yes	0.002	0.0036	-0.0014	0	0.0003	0.001	0.0023	0.0045	0.0191	3,037
Res. RE restructurings, current	No	0.0077	0.0366	0	0	0	0	0.0056	0.0215	0.0978	92,058
	Yes	0.0088	0.0158	0	0	0	0.0026	0.0103	0.0267	0.0685	3,061
Res. RE restructurings, NPL	No	0.0038	0.017	0	0	0	0	0.0006	0.0096	0.0633	91,031
	Yes	0.0064	0.0127	0	0	0	0.0015	0.0074	0.0193	0.0595	3,037
Non-Res. RE restructurings, current	No	0.0094	0.02	0	0	0	0	0.0111	0.0301	0.0873	91,031
	Yes	0.0125	0.0167	0	0	0.0003	0.0061	0.0177	0.0349	0.0767	3,037
Non-Res. RE Restructurings, NPL	No	0.0055	0.0139	0	0	0	0	0.0042	0.0184	0.0671	91,912
	Yes	0.0089	0.0117	0	0	0	0.0043	0.013	0.025	0.0526	3,061

Panel B: Banks with assets less than $500 million

Variable	Newly Eligible?	Mean	Std. Deviation	P1	P10	P25	P50	P75	P90	P99	N
Assets	No	158,814	116,106	11,999	36,780	67,077	126,496	224,323	339,669	475,859	81,948
	Yes	304,574	119,573	55,053	129,895	206,525	315,309	400,166	460,723	497,692	1,419
Loans	No	98,566	80,913	0	16,953	35,976	75,102	139,818	217,626	343,093	81,948
	Yes	199,283	83,905	0	84,349	137,516	204,681	259,543	306,764	379,284	1,419
Res. RE Loans	No	30,149	34,436	0	2,293	7,385	19,562	39,924	69,554	170,270	81,948
	Yes	72,991	48,535	0	14,163	35,863	68,316	98,607	138,201	214,643	1,419
Accounting and Audit Fees	No	18	25	-28	0	0	11	30	45	102	81,948
	Yes	37	37	-53	0	9	32	56	83	145	1,419
Age	No	74	43	3	8	29	88	108	123	147	80,995
	Yes	66	47	3	8	14	77	106	125	150	1,419
Shareholders, 2006	No	1,081	664	104	200	335	1,138	1,600	1,850	2,204	454
	Yes	690	273	104	422	524	610	915	1,057	1,498	916
Shareholders, 2011	No	1,151	1,706	130	149	205	1,202	1,614	1,979	13,564	555
	Yes	646	230	313	369	458	600	800	990	1,200	1,419
Deregistered after JOBS Act	No	0.0061	0.0780	0	0	0	0	0	0	0	81,948
	Yes	0.3925	0.4885	0	0	0	0	1	1	1	1,419
Traded on Datastream (OTC included)	No	0.0647	0.2460	0	0	0	0	0	0	1	81,948
	Yes	0.9112	0.2845	0	1	1	1	1	1	1	1,419
Res. RE Nonacc. NPL Ratio	No	0.0183	0.0298	0	0	0	0.0071	0.0226	0.05	0.1552	79,933
	Yes	0.0255	0.0306	0	0.0001	0.0056	0.0158	0.0323	0.063	0.1448	1,384
Capital Ratio	No	0.1174	0.0810	0.0275	0.0786	0.0898	0.1033	0.1235	0.1538	0.5195	81,948
	Yes	0.1043	0.0339	0.0327	0.0738	0.0859	0.0981	0.1155	0.1459	0.2206	1,419
ROA	No	0.0016	0.0038	-0.0139	-0.0011	0.0008	0.0018	0.003	0.0043	0.0141	81,948
	Yes	0.0008	0.0033	-0.0123	-0.0017	0.0004	0.0013	0.0022	0.003	0.0067	1,419

Res. RE Chargeoff Ratio	No	0.0009	0.0049	-0.0011	0	0	0	0.0004	0.0024	0.0153	75,710
	Yes	0.0013	0.0027	-0.0009	0	0	0.0002	0.0015	0.0038	0.0116	1,164
Provision for loan loss ratio	No	0.0015	0.0038	-0.0014	0	0	0.0005	0.0015	0.0035	0.0171	76,349
	Yes	0.0019	0.0036	-0.0023	0	0.0001	0.0008	0.0023	0.0048	0.0182	1,183
Res. RE restructurings, current	No	0.0073	0.0232	0	0	0	0	0.0041	0.0216	0.0996	75,710
	Yes	0.0114	0.0206	0	0	0	0.0026	0.0132	0.0355	0.1052	1,164
Res. RE restructurings, NPL	No	0.0035	0.0178	0	0	0	0	0	0.008	0.0644	75,710
	Yes	0.0072	0.0159	0	0	0	0	0.0083	0.0214	0.0657	1,164
Non-Res. RE restructurings, current	No	0.0092	0.0203	0	0	0	0	0.0101	0.0306	0.0908	76,225
	Yes	0.0152	0.0203	0	0	0	0.0073	0.0212	0.0399	0.084	1,183
Non-Res. RE Restructurings, NPL	No	0.0051	0.0139	0	0	0	0	0.0015	0.0176	0.068	76,225
	Yes	0.0101	0.0140	0	0	0	0.0039	0.0157	0.0312	0.0581	1,183

Table 5: Determinants of eligibility

This table analyzes the determinants of eligibility for deregistration under the JOBS Act. The dependent variable is the bank's number of holders of record as of its 2011 SEC filings. The main independent variable is the bank's number of holders of record as of its 2006 SEC filings; this variable is labeled '2006 Shareholder Count.' Other determinants include the log of assets and its square, capital ratio and its square, and the log of the bank's age. The table is split into two samples: the first four columns include all banks, while the last four columns only include banks with assets less than $500 million. Each sample conditions on the '2006 Shareholder Count' being less than 2000, which is the new threshold for SEC registration under the JOBS Act. Heteroskedastic-robust standard errors are reported in parentheses.

	OLS: Dependent Variable = 2011 Shareholder Count							
	All banks				Assets<$500M			
2006 Shareholder Count	0.90 ***	0.84 ***	0.85 ***	0.86 ***	0.97 ***	0.96 ***	0.96 ***	0.96 ***
	(0.07)	(0.08)	(0.08)	(0.07)	(0.10)	(0.10)	(0.10)	(0.10)
Log(Assets)		56.55	243.16	275.76		-4.97	-59.89	265.32
		(543.20)	(541.31)	(522.40)		(943.53)	(812.67)	(869.64)
Log(Assets) squared		2.53	-4.29	-5.47		0.46	2.91	-9.32
		(20.15)	(19.94)	(19.25)		(38.69)	(33.33)	(35.24)
Capital Ratio			-4924.83	-4822.25			-1316.07	-886.60
			(4056.42)	(4135.86)			(2386.27)	(2251.40)
Capital Ratio squared			39298.24	38694.47			6226.60	4358.43
			(25589.64)	(26075.34)			(10804.59)	(9752.99)
Log(Age)				-14.13				-35.38
				(39.73)				(38.63)
Intercept	184.66	-1007.22	-2214.88	-2392.46	-11.02	-19.55	347.41	-1691.66
	(72.14)	(3655.73)	(3665.33)	(3547.12)	(67.42)	(5766.24)	(4910.67)	(5306.17)
R-sq	0.40	0.44	0.46	0.46	0.81	0.81	0.81	0.81
R-sq adjusted	0.40	0.43	0.45	0.44	0.80	0.80	0.80	0.80
N	294	294	294	293	88	88	88	88

Table 6: First stage – deregistration decision

This table shows the determinants of deregistration in the months following the JOBS Act. The dependent variable is 'Deregistration*Post-JOBS', a dummy equal to one in the post-JOBS period if the bank deregistered from the SEC in the four months after the JOBS Act. The main independent variable is 'Newly Eligible to Delist*Post-JOBS', a dummy equal to one if the bank had between 300 and 1200 shareholders of record as of its 2011 SEC filings and could thus deregister from the SEC in the post-period as a result of the JOBS Act. I interact this variable with book values taken from the bank's call reports as of 2012Q1, the quarter immediately preceding the passage of the JOBS Act. In particular, the interactions use '2012Q1 Assets<$500M,' a dummy equal to one if the bank had assets less than $500 million; 'Ln(2012Q1 Assets),'; and '2012Q1 Capital Ratio.' Finally, I control for within-bank changes using contemporaneous covariates of 'Assets<$500M,' 'Ln(Assets),' and 'Capital Ratio.' Bank and time fixed effects are included but not reported. The table shows results for two samples: the sample of all banks and the sample of banks that have below $500 million in assets. Standard errors are clustered by bank and are reported in parentheses.

	OLS: Dependent Variable = Deregistration Following JOBS Act					
	All Banks			Assets < $500M		
Newly Eligible to Delist*Post-JOBS	0.075 ***	1.497 ***	1.981 ***	0.429 ***	3.492 ***	3.959 ***
	(0.026)	(0.497)	(0.546)	(0.056)	(1.237)	(1.306)
Newly Eligible*(2012Q1 Assets < $500M)*Post	0.353 ***	0.205 **	0.184 **			
	(0.062)	(0.083)	(0.082)			
Newly Eligible*Ln(2012Q1 Assets)*Post		-0.102 ***	-0.119 ***		-0.245 **	-0.265 ***
		(0.035)	(0.036)		(0.099)	(0.102)
Newly Eligible*(2012Q1 Capital Ratio)*Post			-2.496 **			-2.129
			(0.974)			(1.529)
(2012Q1 Assets<$500M)*Post	0.000	0.008	0.008			
	(0.003)	(0.005)	(0.005)			
Ln(2012Q1 Assets)*Post		0.004 ***	0.003 ***		0.005 ***	0.005 ***
		(0.001)	(0.001)		(0.001)	(0.001)
(2012Q1 Capital Ratio)*Post			-0.007			-0.002
			(0.007)			(0.006)
Assets<$500M	-0.004	-0.005	-0.006			
	(0.009)	(0.008)	(0.008)			
Ln(Assets)		-0.006	-0.006		-0.009 *	-0.009 *
		(0.004)	(0.004)		(0.005)	(0.005)
Capital Ratio			-0.030 *			-0.040
			(0.019)			(0.021)
Intercept	0.009	0.036	0.044	0.005	0.049	0.059
	(0.008)	(0.047)	(0.053)	(0.001)	(0.065)	(0.067)
R-sq	0.606	0.611	0.617	0.627	0.637	0.640
Adj. R-Sq	0.578	0.583	0.590	0.601	0.611	0.614
N	101397	101397	101397	82171	82171	82171

Table 7: Accounting and audit expenses

This table shows the effect of deregistration on accounting and audit expenses. The dependent variable is the log of accounting and audit expenses. The main independent variable, 'Dereg*Post,' is a dummy equal to one in the post-JOBS period if the bank deregistered in the four months after the JOBS Act. For each column, I instrument for 'Dereg*Post' using the first-stage from the corresponding column in Table 6; in particular, excluded instruments include the bank's eligibility to deregister under the JOBS Act and, depending on the specification, the bank's eligibility is interacted with the bank's book values (e.g. assets and capital) in the quarter preceding the passage of the JOBS Act (2012Q1). Other independent variables include 'Assets < $500M,' a dummy equal to one if the bank's assets are below $500 million; controls for the contemporaneous capital ratio; and log of assets. Bank and time fixed effects are included but not reported. The table shows results for two samples: the sample of all banks and the sample of banks that have below $500 million in assets as of the passage of the JOBS Act. Standard errors are clustered by bank and are reported in parentheses.

	IV: Dependent Variable = Ln(1+Accounting and Audit fees)					
	All Banks			2012Q1 Assets < $500M		
Dereg*Post	-0.3639*	-0.5163**	-0.4671**	-0.4145**	-0.5720***	-0.5957***
	(0.2063)	(0.2124)	(0.1858)	(0.2066)	(0.2186)	(0.2028)
Assets < $500M	-0.1419**	-0.0787	-0.0775			
	(0.0592)	(0.0589)	(0.0589)			
(2012Q1 Assets < $500M)*Post	-0.0804**	0.0100	0.0083			
	(0.0318)	(0.0418)	(0.0418)			
Log(Assets)		0.1769***	0.1890***		0.2679***	0.2662***
		(0.0586)	(0.0641)		(0.0644)	(0.0722)
Log(2012Q1 Assets)*Post		0.0372***	0.0356***		0.0579***	0.0593***
		(0.0118)	(0.0120)		(0.0116)	(0.0118)
Capital Ratio			0.1882			-0.0113
			(0.3253)			(0.3477)
(2012Q1 Capital Ratio)*Post			-0.0426			0.0466
			(0.1641)			(0.1668)
J-statistic p-value	0.5643	0.3006	0.4692		0.2568	0.4957
Kleibergen-Paap LM Statistic	43.2366	43.2029	43.3005	34.5896	34.4681	34.4968
Kleibergen-Paap Wald F Statistic	35.9300	26.2846	19.7412	62.6392	37.5707	24.7334
N	99090	99090	99090	80344	80344	80344

Table 8: Provisions for loan losses

This table shows the effect of deregistration on provisions for loan losses. The dependent variable is the log of the bank's provisions for loan losses. The main independent variable, 'Dereg*Post,' is a dummy equal to one in the post-JOBS period if the bank deregistered in the four months after the JOBS Act. For each column, I instrument for 'Dereg*Post' using the first-stage from the corresponding column in Table 6; in particular, excluded instruments include the bank's eligibility to deregister under the JOBS Act and, depending on the specification, the bank's eligibility is interacted with the bank's book values (e.g. assets and capital) in the quarter preceding the passage of the JOBS Act (2012Q1). Other independent variables include 'Assets < $500M,' a dummy equal to one if the bank's assets are below $500 million; controls for the contemporaneous capital ratio; and log of assets. Bank and time fixed effects are included but not reported. The table shows results for two samples: the sample of all banks and the sample of banks that have below $500 million in assets as of the passage of the JOBS Act. Standard errors are clustered by bank and are reported in parentheses.

	IV: Dependent Variable = Ln(1+Provision for Loan Losses)					
	All Banks			2012Q1 Assets < $500M		
Dereg*Post	-1.3481***	-0.7524**	-0.6938*	-1.3276***	-0.5301	-0.6601*
	(0.4196)	(0.3673)	(0.3584)	(0.4301)	(0.3678)	(0.3738)
Assets < $500M	-0.7853***	0.0133	0.0123			
	(0.1088)	(0.0996)	(0.0994)			
(2012Q1 Assets < $500M)*Post	0.3560***	-0.2458***	-0.2137***			
	(0.0556)	(0.0754)	(0.0757)			
Log(Assets)		2.4359***	2.4158***		2.5316***	2.4860***
		(0.1157)	(0.1227)		(0.1301)	(0.1376)
Log(2012Q1 Assets)*Post		-0.2596***	-0.2375***		-0.3405***	-0.3173***
		(0.0201)	(0.0209)		(0.0214)	(0.0222)
Capital Ratio			-0.0928			-0.5459
			(0.5823)			(0.6442)
(2012Q1 Capital Ratio)*Post			1.1199***			0.9489***
			(0.1716)			(0.1645)
J-statistic p-value	0.6746	0.5227	0.7233		0.5652	0.0941
Kleibergen-Paap LM Statistic	43.4630	43.4362	43.5412	34.7252	34.5652	34.5917
Kleibergen-Paap Wald F Statistic	35.9260	26.6946	20.1833	62.5504	39.7935	26.2783
N	97749	97749	97749	79710	79710	79710

Table 9: OLS Residential real estate restructurings among low-capital banks (capital ratio < 8.5%)

This table shows the effect of deregistration on mortgage restructurings. The dependent variable is the level of the bank's mortgage restructurings divided by the pre-period (the first quarter of 2010) size of its residential real-estate portfolio (that is, **Res. RE restructurings, current** defined in table A1). 'Dereg' is a dummy equal to one in the post-JOBS period if the bank deregistered in the four months after the JOBS Act, and 'Post' is a dummy equal to one in the year after passage of the JOBS Act. The main independent variable is 'Dereg*Post.' This coefficient tells us how banks that deregister change the level of their restructurings. Other independent variables include 'Assets < $500M,' a dummy equal to one if the bank's assets are below $500 million; controls for the contemporaneous capital ratio, log of assets, and the interaction between these variables and the 'post' period. Bank and time fixed effects are included but not reported. The table shows results for two samples: the sample of all banks with 2012Q1 capital ratios below 8.5%, and the sample of banks that, in addition, have below $500 million in assets. Standard errors are clustered by bank and are reported in parentheses.

	OLS: Dependent Variable = Mortgage Restructurings/(2010 Mortgage Portfolio)					
	All Banks			2012Q1 Assets < $500M		
Dereg*Post	0.0054*	0.0056**	0.0055**	0.0079**	0.0082**	0.0080**
	(0.0028)	(0.0027)	(0.0028)	(0.0039)	(0.0039)	(0.0039)
Assets < $500M	-0.0001	0.0010	0.0009			
	(0.0026)	(0.0026)	(0.0026)			
(2012Q1 Assets < $500M)*Post	-0.0007	0.0007	0.0007			
	(0.0009)	(0.0015)	(0.0015)			
Log(Assets)		0.0030*	0.0028		0.0025	0.0026
		(0.0018)	(0.0020)		(0.0022)	(0.0024)
Log(2012Q1 Assets)*Post		0.0004	0.0004		0.0000	0.0000
		(0.0004)	(0.0004)		(0.0005)	(0.0005)
Capital Ratio			-0.0175			-0.0265
			(0.0191)			(0.0252)
(2012Q1 Capital Ratio)*Post			-0.0080			-0.0059
			(0.0234)			(0.0372)
R-sq	0.6897	0.6901	0.6902	0.7077	0.7078	0.7080
R-sq adjusted	0.6678	0.6681	0.6682	0.6868	0.6870	0.6871
N	16698	16698	16698	12903	12903	12903

Table 10: IV Residential real estate restructurings

This table shows the effect of deregistration on mortgage restructurings. The dependent variable is the level of the bank's mortgage restructurings divided by the pre-period (the first quarter of 2010) size of its residential real-estate portfolio (that is, **Res. RE restructurings, current** defined in table A1). The main independent variable, 'Dereg*Post,' is a dummy equal to one in the post-JOBS period if the bank deregistered in the four months after the JOBS Act. For each column, I instrument for 'Dereg*Post' using the first-stage from the corresponding column in Table 6; in particular, excluded instruments include the bank's eligibility to deregister under the JOBS Act and, depending on the specification, the bank's eligibility is interacted with the bank's book values (e.g. assets and capital) in the quarter preceding the passage of the JOBS Act (2012Q1). Other independent variables include 'Assets < $500M,' a dummy equal to one if the bank's assets are below $500 million; controls for the contemporaneous capital ratio; and log of assets. Bank and time fixed effects are included but not reported. The table shows results for two samples: the sample of all banks and the sample of banks that have below $500 million in assets as of the passage of the JOBS Act. Standard errors are clustered by bank and are reported in parentheses.

	IV: Dependent Variable = Mortgage Restructurings/(2010 Mortgage Portfolio)					
	All Banks			2012Q1 Assets < $500M		
Dereg*Post	0.0070*	0.0089**	0.0094**	0.0087**	0.0113**	0.0114**
	(0.0039)	(0.0040)	(0.0040)	(0.0039)	(0.0047)	(0.0047)
Assets < $500M	-0.0031	-0.0005	-0.0005			
	(0.0027)	(0.0019)	(0.0019)			
(2012Q1 Assets < $500M)*Post	-0.0028	-0.0036	-0.0036			
	(0.0021)	(0.0028)	(0.0028)			
Log(Assets)		0.0089**	0.0088**		0.0072*	0.0074
		(0.0039)	(0.0043)		(0.0041)	(0.0046)
Log(2012Q1 Assets)*Post		-0.0004	-0.0004		-0.0003	-0.0003
		(0.0004)	(0.0004)		(0.0003)	(0.0003)
Capital Ratio			-0.0015			0.0005
			(0.0154)			(0.0193)
(2012Q1 Capital Ratio)*Post			0.0010			-0.0070
			(0.0090)			(0.0077)
J-statistic p-value	0.1291	0.2175	0.3230		0.2841	0.1322
Kleibergen-Paap LM Statistic	43.2301	43.2183	43.3439	34.6475	34.6000	34.6256
Kleibergen-Paap Wald F Statistic	37.0843	27.7008	20.5547	65.0435	39.3388	26.1949
N	92700	92700	92700	75793	75793	75793

Table 11: IV Residential real estate restructurings for low-capital banks (capital ratio < 8.5%)
This table shows the effect of deregistration on mortgage restructurings. The dependent variable is the level of the bank's mortgage restructurings divided by the pre-period (the first quarter of 2010) size of its residential real-estate portfolio (that is, **Res. RE restructurings, current** defined in table A1). The main independent variable, 'Dereg*Post,' is a dummy equal to one in the post-JOBS period if the bank deregistered in the four months after the JOBS Act. For each column, I instrument for 'Dereg*Post' using the first-stage from the corresponding column in Table 6; in particular, excluded instruments include the bank's eligibility to deregister under the JOBS Act and, depending on the specification, the bank's eligibility is interacted with the bank's book values (e.g. assets and capital) in the quarter preceding the passage of the JOBS Act (2012Q1). Other independent variables include 'Assets < $500M,' a dummy equal to one if the bank's assets are below $500 million; controls for the contemporaneous capital ratio; and log of assets. Bank and time fixed effects are included but not reported. The table shows results for two samples: the sample of all banks with (2012Q1 Capital Ratio <8.5%) and the sample of banks that, in addition, have below $500 million in assets as of the passage of the JOBS Act. Standard errors are clustered by bank and are reported in parentheses.

	IV: Dependent Variable = Mortgage Restructurings/(2010 Mortgage Portfolio)					
	All Banks			2012Q1 Assets < $500M		
Dereg*Post	0.0136**	0.0138**	0.0138**	0.0193**	0.0200**	0.0181**
	(0.0058)	(0.0060)	(0.0060)	(0.0076)	(0.0078)	(0.0075)
Assets < $500M	-0.0002	0.0010	0.0009			
	(0.0025)	(0.0025)	(0.0025)			
(2012Q1 Assets < $500M)*Post	-0.0006	0.0007	0.0007			
	(0.0009)	(0.0015)	(0.0015)			
Log(Assets)		0.0032*	0.0031		0.0028	0.0030
		(0.0017)	(0.0019)		(0.0022)	(0.0024)
Log(2012Q1 Assets)*Post		0.0004	0.0003		-0.0002	-0.0002
		(0.0004)	(0.0004)		(0.0005)	(0.0005)
Capital Ratio			-0.0156			-0.0235
			(0.0186)			(0.0245)
(2012Q1 Capital Ratio)*Post			-0.0103			-0.0094
			(0.0228)			(0.0360)
J-statistic p-value	0.0464	0.1259	0.1048		0.3922	0.2768
Kleibergen-Paap LM Statistic	14.9807	14.9899	15.0177	9.0062	9.1600	9.2249
Kleibergen-Paap Wald F Statistic	11.9742	7.9976	5.9894	16.2746	7.9535	5.5278
N	16698	16698	16698	12903	12903	12903

Table 12: Residential real estate restructurings – falsification test

This table tests for a pre-trend in mortgage restructurings among banks likely to deregister. All other tables use the period 2010Q2-2014Q1 with the 'post' period beginning in 2012Q2. This table, however, uses the sample 2009Q2-2012Q1 and introduces a 'placebo' period beginning in 2011Q2. The dependent variable is the level of the bank's mortgage restructurings divided by the pre-period (the first quarter of 2010) size of its residential real-estate portfolio (that is, **Res. RE restructurings, current** defined in table A1). The main independent variable, 'Dereg*Placebo,' is a dummy equal to one in the post-JOBS period if the bank deregistered in the four months after the JOBS Act. For each column, I instrument for 'Dereg*Placebo' using the first-stage from the corresponding column in Table 6; in particular, excluded instruments include the bank's eligibility to deregister under the JOBS Act and, depending on the specification, the bank's eligibility is interacted with the bank's book values (e.g. assets and capital) in the quarter preceding the passage of the JOBS Act (2012Q1). Other independent variables include 'Assets < $500M,' a dummy equal to one if the bank's assets are below $500 million; controls for the contemporaneous capital ratio; and log of assets. Bank and time fixed effects are included but not reported. The table shows results for two samples: the sample of all banks with (2012Q1 Capital Ratio <8.5%) and the sample of banks that, in addition, have below $500 million in assets as of the passage of the JOBS Act. Standard errors are clustered by bank and are reported in parentheses.

	IV: Dependent Variable = Mortgage Restructurings/(2010 Mortgage Portfolio)					
	All Banks			2012Q1 Assets < $500M		
Dereg*Placebo	0.0080	0.0065	0.0068	0.0090	0.0042	0.0052
	(0.0069)	(0.0064)	(0.0064)	(0.0089)	0.0059	(0.0075)
Assets < $500M	-0.0008	-0.0029	-0.0029		(0.0090)	
	(0.0025)	(0.0026)	(0.0026)			
(2012Q1 Assets < $500M)*Placebo	0.0009	0.0036**	0.0036**			
	(0.0009)	(0.0018)	(0.0018)			
Log(Assets)		-0.0040	-0.0036			-0.0026
		(0.0027)	(0.0026)		-0.0051	(0.0033)
Log(2012Q1 Assets)*Placebo		0.0010**	0.0008**		(0.0035)**	0.0014**
		(0.0004)	(0.0004)		0.0014	(0.0006)
Capital Ratio			-0.0270		(0.0006)	-0.0188
			(0.0259)			(0.0294)
(2012Q1 Capital Ratio)*Placebo			-0.0345			-0.0765
			(0.0251)			(0.0471)
J-statistic p-value	0.6963	0.9609	0.9970		0.5022	0.7271
Kleibergen-Paap LM Statistic	14.9479	14.9084	14.9239	9.0116	9.1244	9.1417
Kleibergen-Paap Wald F Statistic	11.9776	7.9987	6.0224	16.4425	8.0501	5.5293
N	13030	13030	13030	10123	10123	10123

Table 13: Other troubled debt restructurings for low-capital banks (capital ratio < 8.5%)
This table shows the effect of deregistration on non-mortgage restructurings. The dependent variable is the level of the bank's non-mortgage restructurings divided by the pre-period (the first quarter of 2010) size of its non-mortgage portfolio. Specifically, the dependent variable is defined under '**Non-Res. RE restructurings, current'** in table A1. The main independent variable, 'Dereg*Post,' is a dummy equal to one in the post-JOBS period if the bank deregistered in the four months after the JOBS Act. For each column, I instrument for 'Dereg*Post' using the first-stage from the corresponding column in Table 6; in particular, excluded instruments include the bank's eligibility to deregister under the JOBS Act and, depending on the specification, the bank's eligibility is interacted with the bank's book values (e.g. assets and capital) in the quarter preceding the passage of the JOBS Act (2012Q1). Other independent variables include 'Assets < $500M,' a dummy equal to one if the bank's assets are below $500 million; controls for the contemporaneous capital ratio; and log of assets. Bank and time fixed effects are included but not reported. The table shows results for two samples: the sample of banks with capital ratios less than 8.5%, and the sample of banks that, in addition, have below $500 million in assets as of the passage of the JOBS Act. Standard errors are clustered by bank and are reported in parentheses.

	IV: Dependent Variable = Non-Mortgage Restructurings/(2010 Non-Mortgage Portfolio)					
	All Banks			2012Q1 Assets < $500M		
Dereg*Post	0.0102	0.0109	0.0114	0.0122	0.0141	0.0135
	(0.0071)	(0.0072)	(0.0072)	(0.0090)	(0.0092)	(0.0093)
Assets < $500M	0.0021	0.0032	0.0030			
	(0.0022)	(0.0020)	(0.0020)			
(2012Q1 Assets < $500M)*Post	0.0004	-0.0003	-0.0002			
	(0.0009)	(0.0015)	(0.0015)			
Log(Assets)		0.0030	0.0032		0.0039	0.0053 *
		(0.0019)	(0.0021)		(0.0029)	(0.0032)
Log(2012Q1 Assets)*Post		-0.0003	-0.0005		-0.0007	-0.0007
		(0.0005)	(0.0006)		(0.0007)	(0.0008)
Capital Ratio			-0.0160			-0.0381
			(0.0165)			(0.0239)
(2012Q1 Capital Ratio)*Post			-0.0358			-0.0631
			(0.0299)			(0.0566)
J-statistic p-value	0.5982	0.7000	0.8029		0.6111	0.7993
Kleibergen-Paap LM Statistic	14.9851	14.9931	15.0194	9.0062	9.1595	9.2243
Kleibergen-Paap Wald F Statistic	11.9863	8.0079	5.9941	16.2762	7.9550	5.5272
N	16862	16862	16862	12931	12931	12931