For richer, for poorer
Banker's liability and risk taking in New England, 1867-1880*

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Abstract

We study whether banks are riskier if managers have less liability. We focus on New England between 1867 and 1880 and consider the introduction of marital property laws that limited liability for newly wedded bankers. We find that banks with managers who married after a legal change had more leverage, were more likely to "evergreen" loans and violate lending rules and lost more capital and deposits in the Long Depression of 1873-1878. This effect was most pronounced for bankers whose wives were relatively wealthy. We find no evidence that limiting liability increased capital investment at the county level.

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Financial crises, such as the crisis of 2008, are often attributed to increased risk taking by financial institutions. In turn, this appetite for risk is associated with the limited liability of bank managers. For example, Alan Blinder argues that bank manager's asymmetric payoff structure ("heads you become richer than Croesus; tails, you get no bonus") incentivizes risk taking. (Wall Street Journal, May 28, 2009). As a case in point, top executives at Bear Stearns and Lehman Brothers earned significantly more before the crisis than they lost when their firms collapsed (Bebchuk, Cohen and Spamann 2010).[1] Many commentators argue that the stability of the financial sector would greatly benefit from bank managers carrying more downside risk (Hill and Painter 2015, p. 190, Kay 2015, p. 279, Luyendijk 2015, p. 254, and Cohan 2017, p. 146).[2]

This argument has been influential in shaping policy. For example, since 2015, bank managers in the U.K. face the prospect of claw-backs of their bonuses in case of misconduct.[3] However, there is little direct empirical evidence that increasing the liability of bank managers is effective in reducing risk. Moreover, there is little evidence on the possible "unintended consequences" of such a measure. Ideally, one would like to compare banks with differences in managers' downside exposure. However, in practice, managers' downside is limited in most banks. With the exception of the U.K. in recent years, virtually no financial institutions have claw-back mechanisms in place. The example of Bear Stearns and Lehman Brothers shows that exposure to the bank's share price through compensation schemes provides little downside risk. Shares have limited liability and the banks' high leverage ratios make them more akin to call options.[4]

[1] Bhagat and Bolton (2014) report similar findings for a larger sample of banks. Cziraki (2016) provides further supportive evidence.

[2] Admati and Hellwig (2012, p. 122-125) point out that raising capital requirements, though an important first step, might not be enough to reduce risk taking if there are agency conflicts between management and owners. If manager compensation depends on short term performance and there are no claw-back mechanisms, bank managers will be incentivized to shift risks to shareholders, hiding the risks they take and pushing potentially negative outcomes into the future.

[3] Bank of England, Policy Statement 7/14, https://www.bankofengland.co.uk/prudential-regulation/publication/2014/clawback. Similar measures have been proposed in the Netherlands. https://www.nrc.nl/nieuws/2018/03/19/salaris-dijkhoff-bankier-moet-terugbetalen-als-het-misgaat-a1596145.

[4] Commentators often point to the fact that investment banks were much safer before the 1980s when they were still partnerships with unlimited liability. However, this evidence is largely anecdotal, based on a limited number of observations, coming from a period when financial regulation was generally tighter than today.

In this paper, we go back in history to a period when bank managers did face significant liability. We study a particular setting in which there was significant variation in the degree of liability that is plausibly exogenous. We focus on banks in New England between 1867 and 1880. At the time, bank CEOs (called presidents) owned a large fraction of their banks' shares. Shares carried double liability. If a bank became insolvent, the Comptroller of the Currency could seize additional assets up to the value of the initially paid-in capital to make creditors whole. For example, if an investor had invested $10,000 in the bank, it could lose the value of that investment plus an additional $10,000. Bank presidents were differentially exposed to this additional liability. The quantity of assets that could be seized depended in part on the marital regime in place when a banker got married. During the 1840s, states in New England introduced married women's property acts (MWPAs) that changed the treatment of assets that were in the wife's name. For couples married before the enactment of a law, virtually the entire household's wealth could be seized for the payment of a husband's double liability. For couples married after, assets in the wife's name were fully protected from seizure. We investigate whether bank presidents took on more risk if their liability, as a function of the marital regime and the proportion of assets standing in the wife's name, was more limited. We measure risk through (1) higher leverage, (2) the propensity to "evergreen' loans, (3) make loans in violation of the law, and (4) ex post losses of capital and deposits. Throughout the analysis, we keep the regulatory environment, time and place constant.

It is not obvious that limiting managers' liability changes risk taking. First, other stakeholders in the bank might be able to implement policies to attenuate the incentive to take more risk. In the 1860s and 70s, shareholders, represented by a board of directors, could have tried to discipline a bank president through active monitoring. Depositors could have responded by pulling their money out of the bank. In fact, one might expect that banks managed by presidents married after a MWPA to have less rather than more leverage, as bank depositors endogenously force the president and other shareholders to have more skin-in-the-game.[5] Second, bank presidents' concerns about their reputation and the loss of their

[5]In fact, in the context of individual households in the antebellum U.S. South, Koudijs and Salisbury (2016) find that couples married after the passage of a MWPA held fewer assets if the wife was relatively rich compared to the husband (keeping initial wealth constant). This suggests that creditors allowed households with more limited liability to lever up less.

bank specific human capital might make the exact degree of limited liability a moot point to begin with. Furthermore, from a theoretical standpoint, it is not obvious that limiting liability always increases risk taking. Under certain conditions, it might actually achieve the opposite (Ross 2004). Finally, the empirical evidence that limited liability is associated with more risk taking is mixed.[6]

The empirical evidence indicates that reducing bankers' liability increased bank risk taking. Banks managed by presidents married after a MWPA had more leverage, were more likely to evergreen loans and violate lending rules, and were more likely to lose capital in the Depression of 1873-1878. We document that the effect is stronger for bank presidents married to richer wives. Variation in the marital regime under which bank presidents were married comes from three sources: (1) the timing of law changes at the state level, (2) the timing of marriage and (3) a banker's age. States introduced the MWPAs at different points in time. Moreover, bankers tended to get married at different ages. That means that we can simultaneously include fixed effects for (1) the state (or county) a bank president lived in, (2) the year of marriage and (3) year of birth. Doing so, we difference out any spurious effects coming from bankers living in different states, marrying at a later point in life or being younger. The year of marriage fixed effect is based on a banker's first marriage. Divorce was extremely rare, death less so, and widowed bankers tended to remarry after their first (or even second) spouse passed away. We treat this source of variation as exogenous and do not difference it out in our specifications. We include the three different fixed effects step-by-step and show that the estimated effect on risk taking is similar across specifications.

It is not obvious that reining in risk taking is necessarily a good thing. Managers are exposed to their firms' idiosyncratic risk, and may be too risk averse in their management of the firm to begin with (Panousi and Papanikolaou 2012). Limiting liability might be necessary to align managers' incentives with equity holders and potentially with society as a whole. In the context of banking, a key concern is that bank managers with too much liability fail to make loans to fund positive NPV projects. At the same time, it is not evident that limiting liability will increase the supply of loans. Bank managers with limited liability

[6]For example, Andrade and Kaplan (1998), Rauh (2009), Gropp, Hakenes and Schnabel, (2010), and Gilje (2016) find no evidence for this, while Esty (1997), Eisdorfer (2008), Landier, Sraer, and Thesmar (2012), Shue and Townsend (forthcoming) and Schoenherr (2017) do.

might simply opt to substitute equity for deposits, keeping loan supply constant. Even if the supply of loans does increase, it might be at the cost of making the financial system fragile and susceptible to crises. The historical record indicates that negative externalities in the form of a credit crunch and deflation can be significant (Friedman and Schwartz 1963). If limited liability worsens loan quality fell, the scope for such negative externalities increases.

We use county level information to investigate whether, at the aggregate level, limiting the liability of bank presidents increases the supply of loans in good times and whether the financial system became more fragile in bad times. We find no evidence for the increased availability of loans in good times, while there fragility does seem to increase in bad times. We cannot make any firm welfare statements, but the evidence that limiting bankers' liability had any positive effects on the economy is limited at best.

The context that we consider differs from today in two key dimensions. First, in the 1860s and 1870s there was no deposit insurance, and banks were too small to be considered "too-big-to-fail". This means that moral hazard problems induced by (implicit) government guarantees only played a marginal role. Second, individual depositors had a clear incentive to monitor the banks themselves, potentially exerting discipline on banks' management (Calomiris and Kahn 1991; Diamond and Rajan 2000, 2001, Calomiris and Carlson 2017). Rather than a weakness, we see this as a strength of the paper. We are able to isolate the effect of bank CEOs' liability on bank behavior absent bailout expectations and under close scrutiny of depositors.

Another benefit of our setting is that the degree of bank manager liability is determined by the marriage regime and not by bank characteristics. More generally, manager's incentives are likely set in response to agency problems within a firm (Jensen and Meckling 1976, Holmstrom 1979, Holmstrom and Milgrom 1987, Prendergast 2002). This raises the concern that a correlation between a manager's incentives and firm outcomes simply reflect the underlying firm characteristics, rather than a causal effect of invectives on risk taking (Cheng, Hong and Scheinkman 2015).

There is an important caveat: it is possible that certain types of bank presidents self-selected into specific banks. In particular, bank presidents married after a MWPA were arguably better able to cope with risk and may have been a good match for riskier banks.

We provide some evidence that this is not a first order concern. First, bank presidents were not hired in a competitive labor market that would have matched banks and bank presidents based on risk tolerance. Rather, bankers became president through local family or business connections (Lamoreaux 1994). Second, when analyzing changes in bank management, we only find weak evidence that banks with riskier balance sheets were more likely to appoint a bank president married after the law change. Finally, even if the selection of bank president was endogenous, our results would still imply that only individuals with limited liability would consider taking on additional risk.

Most closely related to our paper are Carlson and Calomiris (2015) and Wei and Yermack (2011). The former studies the impact of manager ownership on bank risk taking in 37 cities in the southern and western parts of the U.S. in the 1890s. The paper finds that banks with higher manager ownership had safer assets and were less likely to fail. At the same time, they took on higher leverage. To deal with endogeneity, the paper instruments manager ownership with the turnover of bank CEOs. Wei and Yermack (2011) study the impact of the disclosure of CEOs' "inside debt' positions on equity and bond prices for listed non-financial firms. Inside debt is defined as pensions and other deferred compensation. Upon an SEC mandated disclosure of CEOs' inside debt positions in 2007, the equity prices of firms with higher inside debt fell, while bond prices increased, indicating that more inside debt was associated with less firm risk.

Our paper is also related to a large literature on the impact of banker's ownership and compensations schemes on risk taking (for evidence related to the recent financial crisis see the overviews in Morrison and Shapiro (2011) and Becht, Bolton and Roëll (2011) and, in particular, Fahlenbrach and Stulz (2011) and Berger, Imbierowicz and Rauch (2015)). The key difference between our paper and this literature is that, with limited liability for shareholders, current day bank shares, much like a call option, mainly provide upside to shareholders, not downside, and might actually incentivize more rather than less risk taking.

This paper also relates to an historical literature that looks at the impact of shareholder liability on bank performance. In the U.K., during the most of the 19th century, banks had unlimited liability for their shareholders. Acheson and Turner (2006) and Turner (2014, p. 118) argue that this limited risk taking. In the U.S., between 1865 and 1933, most

banks had double liability. Depending on the state, shareholders in state regulated banks sometimes enjoyed limited (or "single") liability (Macey and Miller 1992).[7] Esty (1998) analyzes a sample of 84 banks for three U.S. states from 1910 to 1915 and suggests that stricter liability led to less investment in risky assets. Using aggregate state level data, Grossman (2001) shows that, outside of periods of widespread financial distress, banks in double liability states were less likely to fail. The nationally regulated banks all had double liability. Mitchener and Richardson (2013) use these national banks to control for common economic shocks. They find that, using aggregate state level data, banks in double liability states took on less leverage. The key difference between our paper and this literature is that we focus on the personal liability of bank managers, not that of general shareholders. In addition, our analysis is based on within-county differences between individual banks.

Finally, this paper is related to Koudijs and Salisbury (2016) who document the impact of similar changes in marriage laws on household investment in the U.S. South in the 1840s. Taken together, the results suggest that changes in liability induced by new marriage legislation had an important effect on economic behavior.

The remainder of this paper is structured as follows. Section 1 provides historical details. Section 2 introduced a simple model to understand the impact of additional personal liability on risk taking. Section 3 discusses the new dataset constructed for this paper. Section 4 presents the empirical results. Section 5 provides a number of robustness tests. Section 6 concludes.

1 Historical background

1.1 New England Banking

We study the commercial banking sector in New England between 1865 and 1880. All banks were unit banks (that is, they did not have any additional branches) and predominantly did business in their local town or city. We focus on so-called national banks that were all

[7] These "state" banks only became important after 1885, outside the period studied in this paper.

regulated at the national level by the Comptroller of the Currency (OCC).[8]. Banks faced the following regulations.

First, there was a minimum size requirement. A bank was required to have a minimum dollar amount of paid-in capital that depended on the population of the town or city a bank was located in; $50,000 for places with less than 6,000 inhabitants, $100,000 for cities between 6,000 and 50,000 inhabitants, and $200,000 for cities larger than that (National Banking Act, 1864, Sect. 71; Fulford 2015). If a bank's losses exceeded its retained earnings, the bank could not automatically write down its paid-in capital. It had to obtain explicit permission from the OCC that could otherwise force the bank to raise fresh capital from existing shareholders. Those shareholders who were unwilling or unable to pay in additional capital would lose the ownership of their shares (National Banking Act, 1864, Sect. 13 and 15).

Second, there were restrictions on the amount of banknotes a bank could issue. There was no central bank at the time that could print money. Instead, the national banks were allowed to issue banknotes up to 90% of the value of (federal) government securities they had on the books. These bonds had to amount to at least $30,000 or one third of paid-in capital, whichever was largest.

Third, there were cash or liquidity requirements. Outside of Boston, banks had to hold 15% of deposits as reserves, 60% of which could be in the form of deposits with so-called reserve city banks in Boston and New York. Banks in Boston had to hold 25% of deposits as reserves, 50% of which could be as deposits with central reserve city banks in New York (Champ 2011). In the absence of a central bank, reserves took the form of short-term securities issued by the Treasury and Greenbacks. Interbank deposits were not a perfect substitute for actual reserves, as banks would suspend payments in case of a crisis.

Finally, the OCC put restrictions on the type of loans national banks could make. They could discount bills of exchange and other forms of commercial paper. In this case, another agent had extended a short term loan (say a loan from a merchant to its client), which the

[8]In addition to the national banks, there were also state regulated banks engaged in commercial banking. These only started to play an important role in the mid-1880s (Fulford 2015). For example, in 1879 there were a total of 544 National Banks in New England, with a joint capital of $164.43 million. In the same year there were 40 State banks and trust companies with a combined capital of $7.10 million *Annual Report of the Comptroller of the Currency* 1879, p. V-VI

bank took at a discount. This was considered relatively safe, as both borrower and loan originator were liable for the loan's repayment. The bank could also make loans on personal security, so-called accommodation loans where only the borrower guaranteed repayment. These loans were also typically short term, but were frequently rolled over (James 1978, Lamoreaux 1994, p. 68-9). These loans were considered to be more risky and through this instrument a single individual could not borrow more than the equivalent of 10% of the bank's paid-in capital. The National Banking Law did not allow banks to make loans on the collateral of real estate or on shares issued by the bank. However, a bank could take real estate or bank stock as additional security for previously contracted debt.[9] The table below provides a simplified balance sheet of a typical bank:

Assets	**Liabilities**
Cash	Paid-in capital
Loans and discounts	Retained earnings
- Accommodation paper	Deposits
- Commercial paper	
Securities	
Government bonds	Bank notes

There was no deposit insurance. The OCC also did not impose any capital-ratio requirements as regulators do today. Instead, the OCC tried to ensure the stability of the system by imposing (proportional) double liability on shareholders. If a bank became insolvent, the OCC could seize a proportional share of the deficit from each shareholder, up to the amount of capital paid-in.[10] For example, if a shareholder bought a share with a par-value of $100 at a price of $100 and the bank would become insolvent with a deficit of $50 per share, the shareholder would lose the entire value of the share plus the $50, independent of whether other shareholders were able to pay the additional $50.

At least by modern standards, the average national bank does not appear very risky. In 1873, the average ratio of loans and securities to capital, our measure of leverage, was

[9] National Banking Act, 1864, Sect. 8, 28, 29 and 35
[10] National Banking Act, 1864, Sect. 7, 9, 12, 16, 21

relatively low at 1.36 (75th percentile at 1.49, see Table 2 below). This number is somewhat misleading, as many shareholders actually had large personal debts outstanding at the bank, effectively collateralized with bank stock. This means that the effective leverage of the banks was likely higher. For example, if we deduct all loans to presidents and directors from both total loans and capital, the average ratio of loans and securities to capital increases to 1.43. This ignores other shareholder who were not on the board of directors but who still obtained large loans from the bank. Also, the economic environment of the 1870s was much more volatile than today, reducing the amount of leverage banks were willing to take on (Wicker 2000).

The OCC strictly enforced shareholders' double liability. Upon insolvency, the OCC would appoint a receiver who would then pursue stockholders.[11] The Supreme Court confirmed this authority in 1868 (75 U.S. 498). This levy was hard to escape: if shareholders who knew a bank to be insolvent had transferred their shares to someone else, this transaction was considered void (1 Hughes 158). Between 1870 and 1879 the OCC made total assessments of $6.8 million, of which 41% was eventually collected (Macey and Miller 1992). In some cases, shareholders themselves were insolvent, in other cases they "could not be come at' for collection (OCC Annual report 1880, p. LXXIX).

The OCC mandated a particular governance structure. Each bank had a board of directors that was elected by the shareholders in an annual meeting. There had to be at least five directors who appointed a president from their own ranks that acted as the CEO of the bank. The president received a (fixed) nominal salary for his efforts. Day-to-day operations were supervised by the cashier, who often had to sign a bond that obliged him to pay a significant amount of money if he did not fulfil his duties. Formally, each director (including the president) had to own at least 10 shares in the bank (each with a par value of $100) – this would amount to a stake of 2% in a bank with $50,000 paid-in capital.[12].

The informal governance structure, at least in New England, was somewhat different. New England was one of the most industrialized areas on the country and starting in the early 19th century there was a significant amount of demand for outside capital to allow

[11] National Banking Act, 1864, 50. Ball (1881, p. 258-264) gives an overview of the exact legal procedure.
[12] National Banking Act, 1864, Sect. 8, 9

the factories to grow.[13] In response, factory owners and their economic allies set up banks to raise money in the form of deposits than could then be invested into their businesses in the form of accommodation loans. Lamoreax (1994) refers to this as "insider lending". Hilt (2015) confirms that this state of affairs persisted into the 1870s. This gave rise to a particular ownership structure. Banks were typically closely held by local insiders who, as president or director, owned a significant number of shares. Figure 1 presents the distribution of shareholdings for a subsample of bank presidents in our sample (this data is only available for about 1/6 of all bankers in our sample). On average, bank presidents appear to have owned 15% of shares outstanding, but some bankers owned much more than that.

Formally, the board of directors was supposed to actively monitor the management of the banks. However, in practice the other directors delegated most decision making to the bank president, only sporadically attending board meetings. In their reports, bank examiners often complained about their lack of involvement. Lamoreaux (1994, p. 107-8) indicates that this "opened the door to opportunistic behavior on part of the bank's active managers".

1.2 The Depression of 1873-1878

After the Civil War the U.S. economy was booming, with real industrial production increasing by 46%. Part of this growth was related the expansion of the railroad network in the West. This attracted a lot of capital. When the boom ended a number of financial institutions, in particular investment banks like Philadelphia based Jay Cooke and Co., failed due to loan defaults and the failure of (guaranteed) stock and bond underwriting for the railroads. This led to a nationwide financial crisis, centered on New York. The stock market fell 25% in a week and the New York stock exchange was closed for a period of 10 days (Sprague 1910; Mixon 2008). This proved the start of a long lived Depression that would last until 1878. It is not well understood why the Panic of 1873 had such long-lasting effects. The answer seems to lie in a combination of the deleveraging of the financial sector (in particular the investment banks of the time), and the concurrent decision of the U.S. government to return to the Gold Standard (which would eventually happen in 1879) which led to a contraction

[13] In 1860 (1880), manufacturing in New England accounted for 28.0% (16.3%) of total U.S. production, whereas only 10.0% (8.1%) of the population lived in this part of the country (Niemi 1974).

of the monetary base and deflation (Friedman 1990).

In real terms, industrial production was not much affected. However, in nominal terms industrial production fell by 34.7% between 1873 and 1878 (Figure 2, Davis 2004). This had an important impact on the New England manufacturers who had extensively used credit to fund of their post-Civil War expansion (Hilt 2015). The dollar value of production did not keep up with their debt burden. This meant that the amount of bad loans on the National Banks' balance sheets increased significantly. The OCC annual reports indicate that between 1876 and 1878 the National Banks had to write down 8.2% of the outstanding loans in 1873. However, this masks significant heterogeneity across banks. For example, three large national banks in Rhode Island had to write down around 80% of their loan portfolio in the aftermath of the bankruptcy of the textile empire of Amasa and William Sprague (Bank examiner reports).

1.3 General downside protection

Double liability meant that, as large shareholders, bank presidents had a significant exposure to downside risk. There were some general forms of personal downside protection that would have limited liability, but these were either limited or hard to obtain.

First, there was a federal bankruptcy regime in place between March 1867 and September 1878. The Civil War had forced many borrowers into default and a temporary federal bankruptcy regime was set up to facilitate an orderly workout of these insolvencies that often spanned multiple states. A borrower could file for bankruptcy if he could repay at least 50% of his debts and at least half of the creditors approved.[14] Upon bankruptcy, a debtor had to surrender all assets to a creditor-appointed assignee who was to liquidate the estate. If the borrower fully cooperated he could obtain a discharge of any remaining unsecured debt. In addition, the law exempted $500 of personal property from the seizure of creditors (Warren 1935). These came on top of homestead exemptions that ranged between $0 (Rhode Island) and $800 (Massachusetts) (Farnham 1938). The federal bankruptcy system was set to expire in 1873, but was renewed for another five years in response to the Panic of that year (Warren

[14] In 1868 the minimum repayment rate was changed to 30%. In 1873, the minimum fraction of creditors that needed to approve was reduced to a quarter, as long as they represented at least a third of all claims.

1935, p. 120-1). The exempted amounts (at most $1,300) were relatively small compared to the median household wealth reported by bank presidents in the 1870 census of $50,000.

For the elite, there was an additional form of bankruptcy regime: testamentary trusts. Since the beginning of the 19th century, "the Brahmin Caste of New England' had bequeathed a substantial fraction of their wealth in the form of family trusts. A Massachusetts Supreme Court ruling in 1873 established that the assets in these trust funds could not be seized by the beneficiaries' creditors. An 1875 Federal ruling even allowed trusts to protect the income these assets generated. As a result, some the elite's wealth was protected in bankruptcy. At the very least, it would survive intact and could be passed on to the next generation. Setting up a testamentary trust was costly. Their use, therefore, appears to have been limited outside the upper classes (Dobkin Hall 1973, in particular p. 236 and 309).

1.4 The introduction of married women property acts

In this environment of limited downside protection, the introduction of married women property acts (MWPAs) arguably had a first order impact on people's financial situation. Until the 1840s marriages had been governed by traditional common law. This stipulated that, upon marriage, husband and wife were legally one. The husband automatically became possessed of the personal property a wife brought into the marriage. The real estate she owned remained her separate property, but the husband had the right to the associated profits. Creditors could lay claim on the wife's personal property and income flows derived from her real estate as payment for the husband's debts (Warbasse 1987, p. 7-9). A couple had the option to sign a prenuptial agreement protecting the wife's property from the claims of a husband's creditors. In New England, however, there was considerable uncertainty whether prenuptial agreements would be enforced in court (Salmon 1986, p. 120). As a result, prenuptial agreements seem to have been seldom used (Warbasse 1987, p. 188. Appendix B has more details). In the same vein, post-nuptial agreements between spouses were generally hard to enforce in court and not generally used.

As a response to these problems, states in New England were comparatively early in passing state laws amending the common law so that, for all new marriages, the wife's property (either acquired before or after marriage) would always be protected from creditors,

irrespective of whether there was a prenuptial agreement (Salmon 1986, p. 139-40; Warbasse 1987, p. 188). Underlying these changes was a growing belief that wives' interests in marriage should be better protected (Warbasse 1987). Table 1 gives an overview of the different laws that were passed. Some laws (such as the first law passed by Connecticut in 1845) only protected the proceeds of a wife's real estate. Other laws (such as the one passed in Maine in 1844) also protected personal property. In the end, all states in New England passed laws that protected all of a wife's assets. Massachusetts and New Hampshire were relatively late introducing this legislation as they had first opted to pass laws that gave prenuptial agreements full legal standing (in 1845 and 1847 respectively).

The case law confirms that the courts consistently enforced the new laws: creditors were successfully barred from taking the wife's property in satisfaction of the husband's debts. However, this was only the case for couples married after the law. The new legislation did not apply retroactively. This would have been unconstitutional as the contracts clause of the federal constitution stipulated that states could not pass laws that would impair existing contracts. This could only be done at the federal level (as was the case with the introduction of federal bankruptcy code in 1867). The case law indicates that judges closely followed this stipulation (details are in Appendix B). Generally, courts would apply the rules of the state of residence.

In sum, the introduction of the new legislation generated a relatively clean break in the marriage regime. Before the passing of the marriage laws the enforcement of prenuptial agreements was uncertain – this was one of the key reasons for introducing the laws in the first place – and few couples seem to have had them. Afterwards, a wife's property was protected from a husband's creditors by default, independent of whether there was a prenuptial agreement or not. This provided an important change in bank presidents' skin-in-the-game. Before the passing of the law, there was a (temporary) bankruptcy regime in place. However, exemptions only covered small amounts that, for the bankers in our sample, were substantially lower than the amounts that would be protected through the married women's property laws.

1.5 Example

The example of Elijah C. Drew illustrates the mechanism we have in mind. In 1872, Drew started the Eleventh Ward Bank in Boston. He had married Hannah H. Haynes in 1855, after the passage of a MWPA in Massachusetts. This was his second marriage after his first wife had passed away in 1854. Hannah Haynes was the only surviving child of Charles Haynes and sole heir to his estate of around $250,000, which she inherits in 1873 after her father's death. In the words of the bank examiner: "Mrs Drew is rich in her own right by her father of unencumbered property" (emphasis added). Originally a lumber merchant from Maine, Drew himself was of more modest background. He reports wealth of only $2,000 in the 1860 census. According to the bank examiner: "Drew is called a rich man but [his assets] are in real estate and in general terms I hear it is mortgaged." In particular, Drew borrowed heavily to build an upscale apartment building in a new neighborhood in Boston, called the "Commonwealth Hotel".

From the get-go, Drew manages his bank in a risky fashion. The Bank examiner complains incessantly of creative bookkeeping and low cash reserves. In 1874, the bank examiner fears that Drew is deceiving the OCC with regards to a sizeable loan to a certain H.M. Bearce that amounts to more than 10% of paid-in capital: "I fail to be convinced that they are bona fide bills of exchange drawn against existing values or commercial or business paper actually owned by the person negotiating the same.' Later it turns out that these loans, rather than safe commercial paper, are backed with speculative real estate investments in Houston, Texas. A year later, numerous mortgages show up in the balance sheet that are being taken to secure loans that were made previously and turn out problematic. Other loans are in arrears. The examiner advises not to pay out any dividends "in the consequence of so much doubtful paper", but Drew ignores him. In 1876, the examiner reports that Drew is taking on additional leverage and risk. The bank adds its endorsement on risky loans and sells them on at a lower interest rate. This allows them to make a spread, but also exposes them to tail risk. In January 1877, the examiner reports that Drew has made loans to firms and people who are "not rated by the agencies". When trying to uncover more details, no one in the Boston community has any detailed knowledge of these borrowers. The examiner also

complains that Drew is slow in realizing losses: "new notes take up old ones, and keep the debt alive. The president says payments come hard, and people threaten if pressed, they will fail".

At that point, the Eleventh Ward bank itself is on the brink of failure. At the end of January 1877, H.M. Bearce defaults and this triggers a run on the bank. The board of directors steps down. The examiner assumes management and tries to save the bank, but in the end puts the bank into liquidation. A year later, the examiner reports that "no-one anticipated the very hard times that followed, the assets have shrunk beyond anything in my experience, firms have petered out, mortgages, equities etc. have gone out of sight". Most loans are worthless. In the liquidation, the OCC has a large claim against Drew of $140,000. This not only originates from the double liability on his shares, but also from the fact the Drew himself endorsed many loans made by the bank and is on the hook for their repayment. The OCC fails to realize anything on this amount. Drew's main asset, the Commonwealth hotel, is appraised at a value of $266,000 with liabilities amounting to $380,000 that mainly consist of mortgages with a senior claim on the hotel. Mrs. Drew, initially promises to support the bank "to save Drew's good name", but reneges on that promise after the full extent of the bank's failure becomes apparent. Rather than providing support, she claims ownership over some of Drew's remaining assets the examiner had hoped he could sell for the benefit of depositors.

2 Model

In this section we sketch a simple model to highlight the main economic intuition behind our results. Appendix C presents a richer model that more accurately describes the institutional details of our setting.

A bank funds a certain amount of assets with equity E and deposits D. For simplicity, we assume that equity has unlimited liability. We abstract away from any agency conflicts between bank president and other shareholders and we assume that the bank president owns all equity E. Alternatively, we could assume that other shareholders demand that the banker owns at least fraction β. This can never exceed the banker's total household wealth W. The

banker is risk averse with concave utility function $U()$. He lacks commitment. Fraction α of his household wealth is protected from any outside claims as long as it not invested in the bank. We think of this as the wealth held in the wife's name.

The bank operates locally and can issue at most $\overline{D}$ in deposits. For simplicity, depositors are risk neutral. Crucially, there are all atomistically small. They are price takers and cannot coordinate with other depositors to discipline the banker by, for example, rationing the total amount of deposits they make available.

The banker can invest in two risky projects $j = 1, 2$ that have the same expected return μ. There are two states of the world and each risky project pays out $R \in \{\mu - \sigma_j, \mu + \sigma_j\}$ with probabilities $\{\pi, (1-\pi)\}$. Project $j = 2$ is riskier than $j = 1$, that is $\sigma_2 > \sigma_1$. We assume that risk-adjusted expected returns are positive.[15]

We first analyze what happens if $\alpha = 0$ and no wealth is protected. The banker can decide to either issue risk-free (D^*) or risky ($\widehat{D}$). Risk-free deposits are always fully repaid. Risky deposits are sufficiently large so that they cannot be fully repaid in the bad state of the world. If this happens, the regulator can seize any remaining assets in the banker's name.

If the banker decides to issue risk-free deposits, he will optimally decide to invest all of his wealth in the bank since it makes positive risk-adjusted returns, $E = W$. Because he is risk-averse, he will also optimally decide to invest in the least risky project $j = 1$. Expected utility is given by:

$$\pi U\left(\left[W + D^*\right]\left[\mu - \sigma_1\right] - D^*\right) + (1-\pi)U\left(\left[W + D^*\right]\left[\mu + \sigma_1\right] - D^*\right) \tag{1}$$

If the banker decides to issue risky deposits, he will still invest all of his wealth in the bank. The regulator can seize all his wealth anyway and in the bank it makes positive risk-adjusted expected returns. The banker has zero consumption in the bad state. Since losses in the bad state are limited at zero, and he lacks commitment, he will always chose the more risky project $j = 2$ that gives him a higher consumption in the good state. He also has an

[15] That is, in autarky, the banker always prefers to invest in the risky project rather than in the risk-free asset.

incentive to issue deposits up to the limit $\overline{D}$. Expected utility is given by

$$\pi U(0) + (1-\pi)U\left(\left[W+\overline{D}\right]\left[\mu+\sigma_2\right] - \left[1+\rho\right]\overline{D}\right) \tag{2}$$

with ρ the rate on deposits that makes depositors indifferent between depositing in the bank or investing in the risk-free asset, anticipating the banker will decide to invest in project $j = 2$.

Comparing (1) with (2), it becomes apparent that issuing risky deposits is only optimal if the banker's marginal utility at 0 is not too high, or if $\overline{D}$ is sufficiently large that the profits in the good state of the world compensate for having zero consumption in the bad state of the world.

Next, we analyze what happens when $\alpha > 0$ and a fraction of wealth is protected. The solution involving risk-free deposits is unchanged. The banker will still chose the least risky project $j = 1$. He has no incentive to keep any money out of the bank as the bank will never fail. The solution for risky deposits does change. Because marginal utility is higher in the bad state, the banker has an incentive to shift consumption to the bad state. That means he will optimally keep out αW out of the bank, only investing $E = (1-\alpha)W$. The project choice is unchanged. Expected utility is given by

$$\pi U(\alpha W) + (1-\pi)U\left(\left[(1-\alpha)W+\overline{D}\right]\left[\mu+\sigma_2\right] - \left[1+\rho(\alpha)\right]\overline{D}\right) \tag{3}$$

Marginal utility is the bad state will be lower than under $\alpha = 0$. Keeping $\overline{D}$ and the curvature of the utility function constant, the banker will be more likely to issue risky deposits. Under some restrictions on $U()$ and $\overline{D}$, it can be shown that the banker will issue risky deposits if α is larger than some threshold α^*, that is, if a relatively large share of household wealth is in the wife's name.

A bank will have higher leverage if it issues risky rather than risk-free deposits. Not only is the total amount of deposits higher, $\overline{D} > D^*$, the amount of equity will also be lower, $(1-\alpha)W < W$. The impact on total investment is ambiguous. Suppose $\overline{D}$ is relatively small and a banker will only switch from risk-free to risky deposits at a high value of α. At this point, the banker will only invest a limited amount of equity $E = (1-\alpha)W$ in the

bank. It is possible that total investment will be lower than under risk-free deposits, that is $W + D^* \lesseqgtr (1 - \alpha)W + \overline{D}$.

In this particular setup, depositors are indifferent between the bank opting for risk-free deposits with project $j = 1$ and risky deposits with project $j = 2$. However, a regulator might strictly prefer risk-free deposits if the failure of a bank has significant negative externalities.[16]

In sum, we expect that banks with presidents married after the introduction of a new marriage law are (1) more highly levered, (2) make riskier investments and (3) suffer larger losses in bad states of the world, and that these effects are more pronounced for bankers with richer wives. The impact on total investments is ambiguous.

3 Data description

3.1 Sources

Data on bank's balance sheets and their performance come from two sources. First, we use the annual (printed) reports from the Office of the Comptroller of the Currency (OCC). This data is based on self-reported information the banks sent to the OCC (Robertson 1995). These reports have complete coverage and provide a snapshot of the banks' balance sheets on practically the same day (usually in early October) each year. The reported data contain the bank's most important balance sheet items, but lack detailed information on the banks' loan book and specific asset holdings. In addition, there is no information about profits and losses. We entered the data from 1867 (the first year with information on the identity of the bank president) until 1880. The 1873 report was made right before the onset of the Panic of 1873 and we take this as the final pre-crisis year.

Second, we use information from (handwritten) bank examiner reports held by the National Archives. Bank examiners made unannounced annual visits to banks to inspect the books (Robertson 1995). These reports give information about the amount of loans in arrears and detail whether such loans were in the process of collection or whether they were

[16] The model can have a different solution if depositors are risk averse and have some market power. In that case, they might prefer the banker to issue risk-free deposits and they could enforce this by, depending on the exact value of α, restricting the amount of deposits they make available.

kept alive and rolled over. There is also information about the amount lent to president and directors, the amount of loans backed by real estate, and accommodation loans exceeding 10% of paid-in capital. The reports classifies loans being guaranteed by just one or multiple individuals. Closer inspection of the reports indicate, however, that examiners were often unsure about the classification and that banks could easily misreport. Finally, the examiner reports give information about dividends, capital calls and capital writedowns which allows for a reconstruction of a bank's profits and losses. We entered information from the examiner reports between 1870 and 1880.

Third, we use Ancestry.com and Familysearch.org to reconstruct personal information about the bank presidents, in particular their date(s) of marriage to determine whether they were married before or after the passage of a married women's property law, their age and the personal and real estate wealth that they reported in the 1870 census. These numbers are for the household as a whole. We are able to find this information for 547 of all 687 Bank Presidents active between 1867 and 1873. This determines the scope of the final sample that we use. There are a total of 517 banks active in New England between 1867 and 1873. In 386 cases, the banker's personal information is available for each and every year. This number is higher when we consider individual years. For example, of all 504 New England banks active in 1873, there is complete information in 424 cases. In the end, of the potential 3,452 bank-year observations covering 1867-1873, the banker's personal information is available in 2,810 cases.

Fourth, we use the complete count 1850 population census on the NBER server to construct measures of familial wealth for bank presidents and their spouses. The 1850 census is the earliest census that provides wealth information, although this is restricted to real estate. We calculate the average real estate reported by families with the same last (maiden) name and in the same state of birth as the bank president and his spouse. The measures give us an indication about the socioeconomic status of husband and wife and relative amount of wealth they brought into the marriage. We evaluate the accuracy of this measure of familial wealth in Appendix A. Figure A1 plots total household wealth reported in the 1870 census against the sum of husband's and wife's familial wealth constructed from the 1850 census (both in logs). There is a strong correlation between the two.

Finally, we use the county level censuses of 1870 and 1880 to construct information about capital formation at the county level (Haines and ICPSR 2010). In particular, we collect information on manufacturing capital per worker and farm capital per acre.

3.2 Variables

For the pre-crisis period (up to 1873), we construct variables that measure a bank's risk taking on both the liability and asset side.

To capture banks' leverage we use the OCC reports to calculate the ratio of loans and securities to capital. Loans include all loans and discounts made by the bank. Securities mainly consist of railroad bonds and exclude the government bonds that backed the issuance of banknotes. We decompose the ratio of loans and securities to capital into two parts: the ratio of deposits to capital and the ratio of reserves to deposits. The former captures the amount of borrowing a bank undertakes with its capital; the latter indicates how much of that borrowing is kept in the form of reserves rather than loans or securities. Reserves include legal tender (greenbacks and short-term government debt) and specie. For some bank-years, deposits are quite small and the latter ratio is not well defined. To remedy this, we winsorize ratio of reserves to deposits at the 2.5th and 97.5th percentile.

To capture risk taking on the asset side we focus on the loans in arrears reported in the examiner reports. The bank examiner classified these loans into two categories: loans that were in collection and loans that were kept alive and rolled over. If a loan was classified as being in collection, any loss on the loan would be realized immediately. If a loan was rolled over, the borrower was given extra time to repay. As in the example of Elijah C. Drew we consider the latter indicative of a bank taking more risk. If a loan was well collateralized to begin with, the bank would presumably have no good reason to delay collection. Even if the loan was not well collateralized, "evergreening' could expose the bank to additional risks (Blattner 2018). We lack other measures of asset risk. As said, bank examiners' classification of loans being guaranteed by just one or multiple individuals appears imprecise. It is not clear whether lending to president and other directors was especially risky. Lamoreaux (1994) argues that these loans did not suffer from the same informational asymmetries as regular loans and could have been relatively safe. At the same time, there is evidence that, in certain

cases, insiders did abuse their powers to obtain funding for questionable projects (see also Meissner 2005).

For the crisis period (post-1873) we construct a number of outcome variables.

First, based on the examiner reports, we construct measures of loans that were made contrary to law, that is loans collateralized with real estate or individual loans exceeding 10% of paid-in capital. As said, banks were not supposed to make accommodation loans exceeding 10% of paid-in capital. In most cases, if these loans did show up on a bank's balance sheet after 1873, the exact character of the loan had initially been misrepresented. National banks were also not supposed to lend on the collateral of real estate. If such loans did show up on a bank's balance sheet, this would mean that either a previous loan had gone sour, forcing the back to obtain additional security, or that the bank had initially misrepresented the character of a loan. Often, loans made contrary to law only show up on a bank's balance sheet when the examiner discovered them and forced the bank to quickly dispose of it. Thus, we take the maximum of such loans per bank between 1873 and 1880. We normalize by 1873 bank capital.

Second, we construct direct measures of the banks performance. We measure banks' cumulative between profits or losses between 1873 and some end-year as a percentage of 1873 capital. For the 1880 profit or loss figure (the last year in the sample) we assume that reported loans in arrears are worth \$0. We also construct the log-change in deposits and loans between 1873 and some end-year. In the absence of deposit insurance or bailouts, it is likely that the institutions that perform the worst lose most deposits. The change in loans outstanding is supposed to document the real effects of risk taking.

3.3 Summary statistics – Banks

Table 2 reports the summary statistics of the banks in our sample. Of the total 3,452 bank-year observations covering 1867–1873, information on the banker's marital status is available in 2,810 cases. Table 2 reports summary statistics for the most important bank variables for the full and restricted sample that we use. To facilitate comparison, we report all variables for 1873. The table shows that our restricted sample is broadly representative of the sample as a whole. Banks have similar size, geographical distribution over the six New England

states. The same holds for all variables that capture risk taking.

3.4 Summary statistics – Bankers

Table 3 reports summary statistics on the personal characteristics of the bank presidents in our sample, differentiated by those married before or after the passage of a MWPA. The table shows that bankers married after are typically younger (49 vs 59). Their age at current marriage is higher (37 vs 28). This is partially driven by remarriages after the death of the first spouse. Average age at first marriage differs much less (32 vs 28). The year at which their state of residence introduced a MWPA is also earlier (1850 vs 1854). Their self-reported household wealth in the 1870 census is lower ($77k vs $110k) and their wives have slightly higher familial wealth. The age of the bank they manage is broadly similar (31 vs 32 years).

In Table 4, we test whether these differences are statistically significant. We construct a "protection' dummy for each bank president in our data between 1867 and 1873 that indicates whether he was married before (0) or after (1) the introduction of a law. We then regress this protection dummy on the banker's personal characteristics. Column 1 includes the year at which the state of residence passed a MWPA, the age at first marriage and the banker age. All three are significantly different between protected and non-protected bankers. This means that we have three independent sources of variation in the data. Column 2 includes the banker's self-reported household wealth in 1870 and the age of the bank. The former is significantly different between the two groups, while the latter is not. Column 3 includes all aforementioned variables, and shows that in the full specification the difference in household wealth largely disappears. Unreported results indicate that this is largely driven by banker age: younger bankers tend to have accumulated less wealth over their lifetime. Column 4 omits the (few) bachelors in our sample and includes the log-difference in familial wealth between husband and wife. Though protected bankers tend to have wealthier wives, this difference is not statistically significant.

4 Empirical results

In this section, we present the empirical results. We first provide a simple back-of-the-envelope calculation to determine whether double liability claims could ever have impacted wives' wealth. Second, we study whether banks with managers married after the passage of a MWPA took more risk between 1867 and 1873, both in terms of bank leverage and the propensity to evergreen loans. Third, we examine whether these banks performed worse during the Depression of 1873-1878. In addition to estimating average effects, we also study whether effects are stronger for bankers with richer wives. Finally, we investigate whether, at the county level, limiting bankers' liability through a MPWA led to more capital formation.

4.1 Back-of-the-envelope calculation

Could double liability claims ever have affected the wealth held in the wife's name? Because we lack comprehensive data on the shareholdings of bank presidents, we provide a back-of-the-envelope calculation.

A bank invests λC_0, with λ the leverage ratio and C_0 initial capital. There is a shock $\delta \in [-1, 0]$ to assets. The new value of assets and capital are given by

$$A^{'} = (1+\delta)\,\lambda C_0 \tag{4}$$

$$\begin{aligned} C' &= A^{'} - (\lambda - 1)\,C_0 \\ &= (1 + \delta\lambda)\,C_0 \end{aligned} \tag{5}$$

The bank president owns fraction β of the bank's capital, βC_0. He will be affected by double liability (DL) claims if $\beta C^{'} < 0$. DL is capped at $-\beta C_0$.

When is the wealth in the wife's name affected? The initial household wealth is W_0, with fraction α in the wife's name. The husband's assets that are not invested in the bank are given by

$$(1-\alpha)W_0 - \beta C_0 \tag{6}$$

where we assume that β is such that this expression is positive:

$$\beta \leq \frac{(1-\alpha)W_0}{C_0} = \overline{\beta} \tag{7}$$

These assets are sensitive to shock δ. This sensitivity is governed by $\rho \in (0,1)$. The idea is that whenever a shock hits the bank, the banker's assets held outside the bank, be it in real estate or other type of investments, will also fall in value. The wealth in the wife's name is affected when

$$\underbrace{\max\left\{\beta C', -\beta C_0\right\}}_{DL} + (1+\rho\delta)\left[(1-\alpha)W_0 - \gamma C_0\right] < 0 \tag{8}$$

which we can write as a function of δ:

$$\delta < f(\alpha, \beta, \lambda, \rho, C_0, W_0) \tag{9}$$

Figure 3 draws equation (9) for δ against $\beta \in [0, \overline{\beta}]$ (the fraction of bank shares owned by the bank president). At any point below a curve, the wealth in the wife's name is affected by claims arising from double liability. We set α and ρ either to 0.25 or 0.75. We set C_0 and W_0 equal to the 50th percentile that we observe for bank presidents in 1873 that were married after a MWPA and we set λ to the 50th, 75th or 90th percentile. Total household wealth W_0 comes from the 1870 census. Capital C_0 is not adjusted for insider lending. We use two different type of leverage ratios: λ_1 is the ratio of total bank assets to capital; λ_2 is the ratio of loans and securities to capital.

The banks in our sample did not have particularly high leverage (at least not by today's standards) and double liability is only activated at relatively large losses. As said, it was not uncommon in this period for banks to lose around 80% of their loan portfolio. The figure indicates at what values of β the double liability claims arising from such large negative shocks affected the wealth in the wife's name. These numbers, roughly between 5 and 15%, are in the same ballpark as those presented in Figure 1.

4.2 Ex ante risk taking

4.2.1 Leverage

How did the MWPAs affect bankers' risk taking in the years leading up to the Panic of 1873? In Table 6, we explore whether banks managed by presidents married after the passage of a law took on more leverage. We estimate the following regression:

$$Y_{i,t} = aP_{i,t} + bX_i + \tau_t + \psi_i + \varepsilon_{i,t} \tag{10}$$

for bank i in year t. There are three outcome variables. The main one is the ratio of loans and securities to capital. As said, we decompose this ratio into two parts: the ratio of deposits to capital and the ratio of reserves to deposits. $P_{i,t}$ is a dummy which has a value of 1 if, in year t, bank i has a president married after a MWPA. We use annual bank level-data between 1867 and 1873. We always include year fixed effects τ_t and cluster standard errors at the bank level. X_i includes a dummy for Boston, as banks located here had a higher reserve requirement and dummies for the three town population bins (<6,000, 6,000 – 50,000, >50,000) that determined the minimum amount of paid-in capital. ψ_i includes a set of fixed effects.

Column 1 has no additional fixed effects. In this specification, a protected banker increases the ratio of loans and securities to capital with 9.1 percentage points. This is roughly equivalent to moving from the 50th to 65th percentile. The effect is primarily driven by an increase in the ratio of deposits to capital. The ratio of reserves to deposits declines somewhat, but this is not statistically significant. We gradually introduce additional fixed effects. Column 2 adds county fixed effects (which subsume state fixed effects), Column 3 adds year of first marriage fixed effects and Column 4 adds year of birth fixed effects, where the latter two are based on five year bins. The effect of protection on leverage remains roughly similar. The statistical significance of the effect in column 5 is slightly above the 5% level.

Columns 5 and 6 use an alternative specification with either town or bank fixed effects, respectively. The effect in Column 5 is effectively estimated using only two thirds of all the banks that were located in towns with multiple banks. In this specification, the effect

of protection on leverage is more pronounced, providing evidence for both an increase in the deposits to capital and a decrease in reserves to deposits. The effect in Column 6 is effectively estimated using the 142 changes in bank president that occurred between 1867 and 1873. In this specification, the effect on leverage is less pronounced and seems to be a product of both increasing deposits to capital and decreasing reserves to deposits. One interpretation is that newly appointed bank presidents changed the riskiness of the bank by taking reserves out of the vault and lending them out.

Another possible interpretation of the bank fixed effect regression is that banks that got into trouble (as suggested by a drop in the reserves to deposit ratio) were more likely to change bank president, with a younger person stepping in who was more likely to be married after a MWPA. To ensure that this possible dynamic does not drive the results, Table A.1 in the Appendix replicates Table 6 (excluding the specification with bank effects) using a different definition of the protection dummy. For this table, the protection dummy has a value of 1 if a bank's president was married after the passage of a MWPA during all previous $min\{t - 1867, 5\}$ years and 0 otherwise. Results are virtually the same.

Overall, the results in Tables 6 and A.1 suggest that bank presidents married after a MWPA to chose to lever their banks up more than bank presidents married before. In Figure 4, we test whether this effect is strongest for bank presidents with wealthy wives. The vertical axis has the ratio of loans and securities to capital. The horizontal axis has the log-differences between husband's and wife's familial wealth. Both variables are residualized using the specification of Table 6, Column 2, adding back the mean. We use local mean smoothing (Nadaraya 1964, Watson 1964) to calculate kernel-weighted means at the 5th, 10th, ..., 95th percentile of the bankers' wealth distribution.[17] We do this separately for bank presidents married before or after the passage of a MWPA. The figure confirms that the effect of protection on leverage is the strongest for bank presidents married to richer wives.

[17] We use Stata's lpoly command with an automated "rule-of-thumb" bandwidth and a standard Epanechnikov kernel. Smoothing with higher order polynomials yields qualitatively similar results.

4.2.2 Realizing losses

In Table 7 we test whether protected bank presidents were more likely to roll over loans in arrears rather than put them into collection. Data are from 1870 to 1873. The fixed effects are the same as in Table 6. In the first panel, we test whether protected bankers reported a higher fraction of total loans being in arrears. This is not the case.

In the second panel we estimate the following regression

$$AR_{i,t} = aP_{i,t} + bX_i + cA_{i,t} + \tau_t + \psi_i + \varepsilon_{i,t}$$

where $A_{i,t}$ is the fraction of total loans in arrears and $AR_{i,t}$ is the fraction of total loans that is arrears and is being rolled over. Ideally, we would look directly at the fraction of loans in arrears that were rolled over. However, 30% of bank-year observations do not have any loans in arrears, in which case the fraction is not well defined. We therefore opt for including the fraction of total loans in arrears as an explanatory variable.

We find that protected bankers were more likely to roll over loans in arrears. For example, the estimate in Column 2 suggests that the fraction of total loans that were in arrears and rolled over was 0.44 percentage points higher for protected bankers. This is roughly equivalent to moving from the 50th to 80th percentile in the conditional distribution. As we add fixed effects, this effect remains roughly the same and statistically significant, except in Column 3.

For completeness, we report the estimates using the fraction of total loans that were in arrears and put into collection as dependent variable. By construction, these estimates are the mirror image of the second panel. Since 30% of bank-year observations do not feature any loans in arrears, we lack the statistical power to test whether the effect is strongest for bank presidents with rich wives (as we do in Figure 4 for leverage).

4.3 Ex post performance

How did the married women's property laws affect bank performance during the Panic of 1873 and the ensuing Depression? We restrict our sample to banks that were present in the sample in 1873. For each bank, we determine whether its 1873 president was married

before or after the passage of a law. We then investigate whether banks that had a president married after the introduction of a law fared worse. In particular, we estimate the following regression

$$Y_i = aP_{i,1873} + bX_i + \psi_i + \eta_i$$

for bank i, where X_i includes the same controls as before and ψ_i includes a set of fixed effects.

The first set of outcome variables we consider are loans exceeding 10% of paid-in capital and mortgages. As said, both type of loans were contrary to law. If they show up on a bank's balance sheet after 1873 this either signals that the bank had initially misrepresented the character of the loan, or, in case of mortgages, that the bank had been forced to take additional security after a loan had turned sour. Because of their illegal character, these type of loans typically only show up once on a bank's balance sheet, at which point the bank tries dispose of it as quickly as possible. For both variables we therefore take the maximum between 1874 and 1880. We normalize by 1873 capital.

Results are in Table 8. The fixed effects are the same as in Table 6, but exclude year fixed effects as we now only have one observation per bank. There is evidence that protected bank presidents made more loans contrary to law. In the case of loans exceeding 10% of paid-in capital, the point estimate in Column 2 roughly corresponds to moving from the 50th to the 75th percentile. For mortgages, the point estimate roughly corresponds to moving from the 50th to the 85th percentile. Since, 60 or 35% of observations do not have any loans exceeding the limit or feature any mortgages, we do not have sufficient statistical power to test whether the effect is strongest for bank presidents with rich wives.

The second set of outcome variables we consider are accumulated profits and losses between 1873 and some end-year and the log-change in deposits and loans. We first present the results graphically in Figures 5 to 7, using a specification that includes county fixed effects and a dummy for Boston and the three town population bins. In the figure, we vary the end-year between 1874 and 1880. Figure 5 shows that, starting in 1877, protected bank presidents had to absorb additional losses to the tune of 5% of 1873 capital. Not incidentally, 1877 is the first year in which banks started in earnest to write down bad debts from capi-

tal. Figure 6 indicates that in the Panic of 1873, depositors seem to have singled out banks managed by bank presidents married after a MWPA. The additional decrease in deposits for these banks is around 8%. There is some recovery in 1875 and 1876, but in 1877 these face an excess drop deposits of 13%. There is an additional effect in 1880, which is driven by the fact that in general banks managed to increase deposits in that year, but those managed by protected bank presidents could not follow suit. Figure 7 documents a similar pattern for loans outstanding. By the end of the decade, banks managed by bank presidents married after the passage of a MWPA saw loans decrease by an additional 10%. In other words, during the Long Depression after 1873, the MWPAs had significant real consequences.

In Table 9, we fix the end-year at 1878 (the year in which the Long Depression formally ended) and confirm that the effect we document in Figures 5 to 7 is robust to the inclusion of additional fixed effects. Figures 8 to 10, in the same vein as Figure 3, show that the effect is strongest for bank presidents with richer wives. The figures use the same specification as Column 2 in Table 8.

4.4 County level results

So far we have shown that bankers married after the passage of a married women's property law took on more risk. In particular, their banks had higher leverage and were more likely to evergreen loans, In addition, they performed worse during the Depression of 1873-1878. This suggests that limiting banker's liability indeed made banks riskier.

It is not obvious though that this was a bad thing. It is possible that bankers married before the passing of a law were too conservative, foregoing investing in projects that, from a social point of view, had positive net present value. Limiting liability could therefore have led to more productive investment. From this point of view, bank presidents deciding to lever up might be a good thing. Ex ante, it is not clear this argument holds. If bank presidents married before a MPWA were unwilling to lever to up to increase investment, they could always have retained earnings to make the investments they deemed profitable. Alternatively, other individuals in their location might have been able to start a bank and issue equity to fund profitable projects. Since there was no tax subsidy for debt at the time and deposits were not insured, it is not obvious that an increased reliance on equity should

have increased banks' cost of capital.

To gain more insight into the question whether the passage of MWPAs law led to more credit provision, we do the following. For each county in New England, we sum up the amount of paid-in capital of (1) all banks and (2) those banks whose presidents were married after the passing of a law ("protected capital") and divide it by the number of county inhabitants. We then regress two measures of aggregate capital formation at the county level, manufacturing capital per worker and farm capital per acre, on these two bank capital measures.

Results are in Table 10. Regressions are in logs and the coefficient estimates give elasticities. Panel A shows that there is a statistically significant correlation between bank capital and capital formation at the county level. [18] A one standard deviation increase in total bank capital per capita is associated with an increase in manufacturing capital per worker of about 11%, and an in increase in farm capital per acre of 19%. At the same time, the coefficient on protected capital is close to zero, indicating that it does not matter whether a bank president's capital is protected or not. Apparently, the higher leverage ratios picked by bankers married after a married women's property law did not translate into increased credit provision.

In Panel B we regress the log-changes in manufacturing capital per worker and farm capital per acre between 1870 and 1880 on the log of total and protected capital. There is some evidence that counties that relied more on protected capital fared worse in this decade, with a higher reduction in capital investment, although for the case of farm capital the effect is economically small and not very tightly estimated. A one standard deviation increase in protected capital is associated with a drop in manufacturing capital per worker and farm capital per acre of about 7% and 3%, respectively. So, even though the passage of the married women's property laws did not lead to increase in credit provision, there is some evidence that it made the financial system less stable, leading to larger declines in county's capital formation during the Depression of 1873-1878.

[18] This result is consistent with the findings in Fulford (2015) who uses the discontinuity in the banks' minimum size requirement to argue that at least a part of this relationship was causal.

5 Robustness

In this section, we perform two robustness exercises. First, we examine whether the men that would later become bank manager manipulated the timing of their marriage in the 1840s and 1850s to fall under a certain marriage regime. Second, we provide some insights on how bank presidents were selected into specific banks. In particular, we examine whether a bank's balance sheet variables can predict whether a new bank president is married before or after the introduction of a married women's property law.

5.1 Selection of bankers into marriage regime

It is possible that the men who would later become banker and who married after the passage of a MWPA self-selected into the new marriage regime. Maybe such men were more risk tolerant to begin with. If this is the case, the paper's estimates would not pick up the casual impact of limited liability on risk taking, but rather the selection of a certain type of banker. We evaluate this argument in Figures 11 and 12. Courts typically applied the marriage law of the state of residence, so we take the place of marriage as exogenous. However, the choice of when to get married might be endogenous to the banker's type. Figure 11 gives the distribution of bank presidents' year of marriage in the sample, counted in terms of years before or after the passage of a MWPA. The figure shows no evidence of bank presidents postponing their marriage until after the passage of a law. It is possible that different type of men either preferred the marriage regime before or after the passage of law, with some speeding up marriage and some delaying. In this case, self-selection could still be going on, even if we observe no spikes in the distribution. It would predict, though, than men married right before the passage of a MWPA would be younger than usual, and married after would be older than usual. We test for this in Figure 12. The figure shows that bank presidents married after the passage of a law tended to marriage at a later age. However, there is no evidence that close to the introduction of a MWPA, bank presidents tended to marry at a younger or older age.

5.2 Selection of bankers into banks

In Table 5, we investigate whether bankers whose wives' wealth was protected through a married women's property law were more or less likely to be selected into particular banks. Out of all 178 changes in bank presidency between 1867 and 1873, the personal information of the incoming banker is available is 142 cases. Of the 142, 41 or 29% resulted in a bank president married after a MWPA. We regress protection status on the size of the bank (as captured by the log of total assets) and our measure for leverage, the ratio of loans and securities to capital. Both variables are lagged by one year to ensure that we do not pick up new policies instituted by the new bank president. Table 5 indicates that there is some evidence that larger and more levered banks tended to appoint bank presidents married after a MWPA. Increasing the size or leverage of the bank from the 50th to the 75th percentile increases the likelihood of a protected president by 1.32% or 2.66% respectively. These effects are not statistically significant though. This means that there may have been some selection of protected bankers into riskier banks, but that this is not a salient feature of the data.

6 Conclusion

In this paper, we investigate whether limiting bankers' liability increased bank risk taking. We do this in a context without explicit bailout guarantees and deposit insurance. Our results confirm this hypothesis. Bankers married after the passage of a married women property law, whose wives' wealth was protected from claims in the event of bank failure, took more risk than those married before the passage of a law, for whom all household wealth was potentially on the line. Bankers with less liability took on more leverage, exposing their banks to negative shocks. They were also more likely to evergreen loans and make loans contrary to law, leading to worse loan quality. As a result, they lost more capital and deposits after the Panic of 1873, and were forced to cut back on lending.

These findings have important implications for today. Our results suggest that individual bankers' liability can importantly influence risk taking in financial institutions. This lends support to the often-made claim that providing bank managers with more downside exposure can make the financial system safer. The paper's results underscore that we should evaluate

a banker's downside exposure in the context of his entire personal financial situation. We document that the passage of a married women property law primarily increased risk taking for bank presidents with richer wives. This means that, in terms of policy, one size does not fit all. The optimal degree of banker liability depends on how much a banker has to lose in bad states of the world. Bankers who, through marriage or an independent source of wealth, face a comfortable cushion should have more downside exposure.

Finally, we find no evidence that counties enjoyed a greater availability of loans if more presidents were married after the passage of a marriage law. This suggests that limited liability led to a substitution of equity for deposits. Consistent with this view, counties with more protected bank presidents faced a larger contraction of credit after the Panic of 1873 and subsequent depression. This was a rare event and we cannot base any firm welfare statements on it. Nevertheless, the evidence in this paper suggests that the presumed benefits of reducing bankers' liability seem limited at best.

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Tables

Table 1: Dates of Passage of Married Women's Property Laws

State	Date of Introduction
CT	June 22, 1849
ME	March 22, 1849
MA	May 5, 1855
NH	July 2, 1860
RI	February 8, 1844
VT	November 20, 1861

Note. Sources: Kelly (1882), Individual state's statutes

Table 2: Summary Statistics of All Banks and Banks in our Final Sample

Panel A. All Banks

Variable	N	Mean	SD	P25	Median	P75
Log(Total Bank Assets)	504	13.30	0.870	12.61	13.22	13.83
Log(Paid-in Capital)	504	12.27	0.830	11.51	12.21	12.68
CT	504	0.160	0.370	0	0	0
MA	504	0.430	0.500	0	0	1
ME	504	0.130	0.330	0	0	0
NH	504	0.0800	0.270	0	0	0
RI	504	0.120	0.330	0	0	0
VT	504	0.0800	0.280	0	0	0
Assets / Capital	504	2.120	0.400	1.880	2.040	2.270
(Loans and Securities)/Capital	504	1.360	0.380	1.120	1.280	1.490
Fraction loans in arrears	473	0.0300	0.0500	0	0.0100	0.0300
Fraction loans in arrears - rolled over	473	0.0200	0.0500	0	0.0100	0.0300
Fraction loans in arrears - in collection	473	0	0.0200	0	0	0
Earnings/Capital, 1873-1878	494	0.310	0.170	0.250	0.330	0.410
Log change in deposits, 1873-1878	500	0.0100	0.490	-0.270	0	0.260
Log change in loans, 1873-1878	500	-0.100	0.290	-0.240	-0.0600	0.0600
Loans exc. 10% of capital / capital (max. 1874-1880)	473	0.0600	0.120	0	0	0.100
Mortgages / capital (max. 1874-1880)	473	0.0400	0.0900	0	0.0100	0.0400

Panel B. Banks in our Final Sample

Variable	N	Mean	SD	P25	Median	P75
Log(Total Bank Assets)	424	13.28	0.840	12.64	13.22	13.77
Log(Paid-in Capital)	424	12.26	0.810	11.51	12.21	12.61
CT	424	0.170	0.380	0	0	0
MA	424	0.420	0.490	0	0	1
ME	424	0.130	0.340	0	0	0
NH	424	0.0800	0.280	0	0	0
RI	424	0.110	0.320	0	0	0
VT	424	0.0800	0.280	0	0	0
Assets / Capital	424	2.110	0.390	1.880	2.040	2.250
(Loans and Securities)/Capital	424	1.340	0.370	1.130	1.280	1.470
Fraction loans in arrears	395	0.0300	0.0500	0	0.0100	0.0300
Fraction loans in arrears - rolled over	395	0.0300	0.0500	0	0.0100	0.0300
Fraction loans in arrears - in collection	395	0	0.0200	0	0	0
Earnings/Capital, 1873-1878	414	0.320	0.170	0.250	0.340	0.410
Log change in deposits, 1873-1878	421	0.0100	0.480	-0.250	0.0200	0.260
Log change in loans, 1873-1878	421	-0.100	0.300	-0.250	-0.0600	0.0700
Loans exc. 10% of capital / capital (max. 1874-1880)	396	0.0700	0.130	0	0	0.100
Mortgages / capital (max. 1874-1880)	396	0.0400	0.100	0	0.0100	0.0400

Note. Unless stated otherwise, numbers refer to 1873. "Loans and securities" exclude all government securities that back up the issuance of bank notes. "Loans in arrears - kept alive" are loans in delinquency that the bank has decided to roll over and keep on its books. "Loans in arrears - written down" are loans the bank has put into liquidation and is in the process of writing down. "Earnings/Capital, 1873-1878" are accumulated profits and losses between 1873 and 1878, divided by 1873 capital. "Loans exc. 10% of capital (Mortgages) / capital (max. 1874-1880)" gives the maximum amount of loans exceeding 10% of paid-in capital (mortgages) reported between 1873 and 1880, divided by 1873 capital.

Table 3: Summary Statistics Bankers

Panel A. Bankers married after a MWPA (Protected)

Variable	N	Mean	SD	P25	Median	P75
Age banker in 1870	176	48.77	10.93	40	48	58
Age at marriage	176	36.83	12.30	26.44	34.69	45.21
Second+ marriage	177	0.210	0.410	0	0	0
Age at first marriage	176	32.04	9.750	24.38	28.70	37.27
Year of MWPA	177	1850	5.430	1844	1849	1855
Total HH wealth 1870 (dollar)	159	77541	129000	16200	35000	92000
Log(Wf/Wm)	151	-0.0600	1.010	-0.440	0.0300	0.480
Age bank in 1875	147	31.25	17.75	20	24	43

Panel B. Bankers married before a MWPA (Not protected)

Variable	N	Mean	SD	P25	Median	P75
Age banker in 1870	513	58.75	10.26	51	58	66
Age at marriage	512	28.42	7.300	23.80	26.44	30.70
Second+ marriage	523	0.0200	0.120	0	0	0
Age at first marriage	513	28.07	6.540	23.75	26.39	30.35
Year of MWPA	490	1854	5.380	1849	1855	1855
Total HH wealth 1870 (dollar)	484	110000	152000	25000	60000	124000
Log(Wf/Wm)	452	-0.130	0.830	-0.520	-0.0800	0.320
Age bank in 1875	481	32.44	17.97	20	26	44

Note. "Second+ marriage": banker's first wife passed away – remarried. "Wf" and "Wm": wife's and husband's familial wealth in 1850. "Age bank": number of years since the bank originally started.

Table 4: Protection Status and Banker Characteristics

	(1) Protection	(2) Protection	(3) Protection	(4) Protection
Year of MWPA	-0.024***		-0.024***	
	(0.002)		(0.003)	
Age at first marriage	0.021***		0.020***	
	(0.002)		(0.002)	
Banker Age	-0.196***		-0.193***	
	(0.012)		(0.015)	
Log(Total HH wealth, 1870)		-0.043***	-0.018	
		(0.014)	(0.012)	
Bank Age		-0.004	-0.000	
		(0.009)	(0.008)	
Log(Wf/Wm)				0.017
				(0.023)
Observations	656	614	547	603
Adjusted R^2	0.383	0.012	0.375	-0.000
Excl. bachelors	N	N	N	Y

Note. Individual bankers. We regress a banker's protection status (0: married before; 1: married after the passage of a married women property law) on the year a MWPA was passed, the age at first marriage, a banker's age, the log total household wealth reported in the 1870 census, the age of the bank and the log difference between wife's and husband's familial wealth in 1850. The final column excludes all bankers that never married ("bachelors"). Linear probability model. Standard errors in parentheses: $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$.

Table 5: Selection of bankers into banks

	(1) Protection	(2) Protection	(3) Protection	(4) Protection	(5) Protection
L.Log(Total Bank Assets)	0.024		-0.001	0.007	-0.128
	(0.047)		(0.054)	(0.055)	(0.106)
L.(Loans and Securities)/Capital		0.140	0.142	0.109	0.263
		(0.151)	(0.175)	(0.184)	(0.239)
Observations	142	142	142	142	142
Adjusted R^2	-0.005	0.000	-0.007	0.062	-0.093
State FE				Y	
County FE					Y

Note. New bank presidents, first year in office. We regress a banker's protection status (0: married before; 1: married after the passage of a married women property law) on a bank's size (measured by log total assets) and leverage (measured by loans and securities over capital), both lagged by one year. Linear probability model. Standard errors in parentheses: $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$.

Table 6: Bank leverage

	(Loans and Securities)/Capital					
	(1)	(2)	(3)	(4)	(5)	(6)
Protection	0.091**	0.101**	0.087**	0.087*	0.156***	0.041*
	(0.040)	(0.042)	(0.043)	(0.044)	(0.060)	(0.023)
Observations	2810	2810	2625	2601	2810	2810
Adjusted R^2	0.240	0.351	0.362	0.371	0.470	0.842
	(Deposits + Due to) / Capital					
Protection	0.100**	0.112**	0.099**	0.097**	0.169**	0.054**
	(0.044)	(0.046)	(0.047)	(0.048)	(0.066)	(0.026)
Observations	2810	2810	2625	2601	2810	2810
Adjusted R^2	0.258	0.371	0.382	0.388	0.481	0.849
	Reserves / (Deposits + Due to), Win(2.5)					
Protection	-0.016	-0.021	-0.001	-0.002	-0.028**	-0.037*
	(0.015)	(0.015)	(0.016)	(0.017)	(0.014)	(0.019)
Observations	2810	2810	2625	2601	2810	2810
Adjusted R^2	0.163	0.327	0.346	0.355	0.621	0.722
Year FE	Y	Y	Y	Y	Y	Y
County FE	N	Y	Y	Y		
Year of 1st mar. FE	N	N	Y	Y	N	N
Year of birth FE	N	N	N	Y	N	N
Town FE	N	N	N	N	Y	
Bank FE	N	N	N	N	N	Y

Note. Bank-year observations, 1867-1873 (pre-Panic). We regress a bank's leverage (measured by loans and securities over capital), deposits to capital and cash to deposit ratio on a banker's protection status (0: married before; 1: married after the passage of a married women property law) and a number of fixed effects. Year of first marriage and year of birth fixed effects are based on five year bins. The estimated using bank fixed effects are identified using the 142 changes in bank president that took place between 1867 and 1873. All estimates include a dummy for Boston and for different town sizes (<6,000, 6,000 - 50,000, >50,000). The cash to deposit ratio is winsorized at the 2.5th and 97.5th percentile. Standard errors (clustered at the individual bank level) in parentheses: $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$.

Table 7: Realizing losses

	Fraction loans in arrears				
	(1)	(2)	(3)	(4)	(5)
Protection	-0.0023	0.0015	-0.0010	-0.0029	-0.0047
	(0.0040)	(0.0042)	(0.0055)	(0.0057)	(0.0042)
Observations	1575	1575	1486	1485	1575
Adjusted R^2	0.156	0.228	0.211	0.214	0.315
	Fraction rolled over | in arrears				
Protection	0.0036**	0.0044**	0.0034	0.0043*	0.0032*
	(0.0015)	(0.0019)	(0.0027)	(0.0025)	(0.0018)
Fraction loans in arrears	0.7355***	0.7152***	0.7007***	0.7030***	0.7099***
	(0.0998)	(0.1096)	(0.1149)	(0.1134)	(0.1187)
Observations	1575	1575	1486	1485	1575
Adjusted R^2	0.789	0.792	0.778	0.779	0.802
	Fraction in collection | in arrears				
Protection	-0.0036**	-0.0044**	-0.0034	-0.0043*	-0.0032*
	(0.0015)	(0.0019)	(0.0027)	(0.0025)	(0.0018)
Fraction loans in arrears	0.2645***	0.2848***	0.2993***	0.2970***	0.2901**
	(0.0998)	(0.1096)	(0.1149)	(0.1134)	(0.1187)
Observations	1575	1575	1486	1485	1575
Adjusted R^2	0.277	0.288	0.304	0.309	0.322
Year FE	Y	Y	Y	Y	Y
County FE	N	Y	Y	Y	
Year of 1st mar. FE	N	N	Y	Y	N
Year of birth FE	N	N	N	Y	N
Town FE	N	N	N	N	Y

Note. Bank-year observations, 1870-1873 (pre-Panic). We first regress the fraction of a bank's loans in arrears on a banker's protection status (0: married before; 1: married after the passage of a married women property law). We then focus on the fraction of loans in arrears that are either written down or kept alive, conditional on the overall fraction of loans in arrears. We include a number of fixed effects. Year of first marriage and year of birth fixed effects are based on five year bins. All estimates include a dummy for Boston and for different town sizes (<6,000, 6,000 - 50,000, >50,000). Standard errors (clustered at the individual bank level) in parentheses: $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$.

Table 8: Loans contrary to law: loans exc. 10% of capital and mortgages (max. over 1874-1880)

	max{Loans exc. 10% of capital}				
	(1)	(2)	(3)	(4)	(5)
Protection	0.056***	0.054**	0.040*	0.035	0.071*
	(0.019)	(0.021)	(0.021)	(0.022)	(0.040)
Observations	393	393	372	372	393
Adjusted R^2	0.099	0.079	0.075	0.059	-0.200
	max{Mortgages}				
Protection	0.038**	0.043**	0.023	0.021	0.065*
	(0.016)	(0.018)	(0.014)	(0.014)	(0.037)
Observations	393	393	372	372	393
Adjusted R^2	0.098	0.063	0.078	0.090	-0.348
Year FE	Y	Y	Y	Y	Y
County FE	N	Y	Y	Y	
Year of 1st mar. FE	N	N	Y	Y	N
Year of birth FE	N	N	N	Y	N
Town FE	N	N	N	N	Y

Note. Bank level observations. We regress the maximum amount of loans exceeding 10% of capital or the maximal amount of mortgages reported between 1873 and 1880 (divided by 1873 capital) on a banker's protection status (0: married before; 1: married after the passage of a married women property law). National Banks were not allowed to lend more than the equivalent of 10% of paid-in capital to a single borrower. They were also not allowed to make mortgages. They ended up on a bank's balance sheet if (1) a loan needed additional collateral or (2) the bank had initially misrepresented the character of a loan. We include a number of fixed effects. Year of first marriage and year of birth fixed effects are based on five year bins. All estimates include a dummy for Boston and for different town sizes (<6,000, 6,000 - 50,000, >50,000). Standard errors in parentheses: $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$.

Table 9: Performance, 1873 - 1878

	Earnings/Capital, 1873-1878				
	(1)	(2)	(3)	(4)	(5)
Protection	-0.027	-0.039*	-0.057*	-0.058*	-0.076*
	(0.021)	(0.023)	(0.033)	(0.032)	(0.044)
Observations	414	414	390	390	414
Adjusted R^2	0.102	0.174	0.205	0.201	0.166
	Log change in deposits, 1873-1878				
Protection	-0.147***	-0.139**	-0.164**	-0.181**	-0.198**
	(0.055)	(0.054)	(0.067)	(0.071)	(0.092)
Observations	421	421	397	397	421
Adjusted R^2	0.010	0.104	0.132	0.119	0.181
	Log change in loans, 1873-1878				
Protection	-0.067*	-0.080**	-0.095**	-0.099**	-0.135**
	(0.039)	(0.036)	(0.047)	(0.048)	(0.056)
Observations	421	421	397	397	421
Adjusted R^2	0.015	0.126	0.156	0.139	0.315
Year FE	Y	Y	Y	Y	Y
County FE	N	Y	Y	Y	
Year of 1st mar. FE	N	N	Y	Y	N
Year of birth FE	N	N	N	Y	N
Town FE	N	N	N	N	Y

Note. Bank level observations. We regress accumulated profits and losses between 1873 and 1878 (divided by 1873 capital), and the log change in deposits and loans between 1873 and 1878 on a banker's protection status (0: married before; 1: married after the passage of a married women property law). We include a number of fixed effects. Year of first marriage and year of birth fixed effects are based on five year bins. All estimates include a dummy for Boston and for different town sizes (<6,000, 6,000 - 50,000, >50,000). Standard errors in parentheses: $^{*}p < 0.1$,$^{**}p < 0.05$,$^{***}p < 0.01$.

Table 10: Protection and County-Level Outcomes

Panel A: Protection and Capital Formation at the County level

	Log(Mfg. Capital per wkr.)		Log(Farm Capital per acre)	
	(1)	(2)	(3)	(4)
Log(Protected bank capital per cap.)	0.001	0.007	-0.000	0.003
	(0.006)	(0.006)	(0.009)	(0.008)
Log(All bank capital per cap.)	0.134***	0.116**	0.276***	0.159**
	(0.039)	(0.044)	(0.057)	(0.062)
Observations	61	61	61	61
Adjusted R^2	0.176	0.383	0.307	0.518
State FE		Y		Y

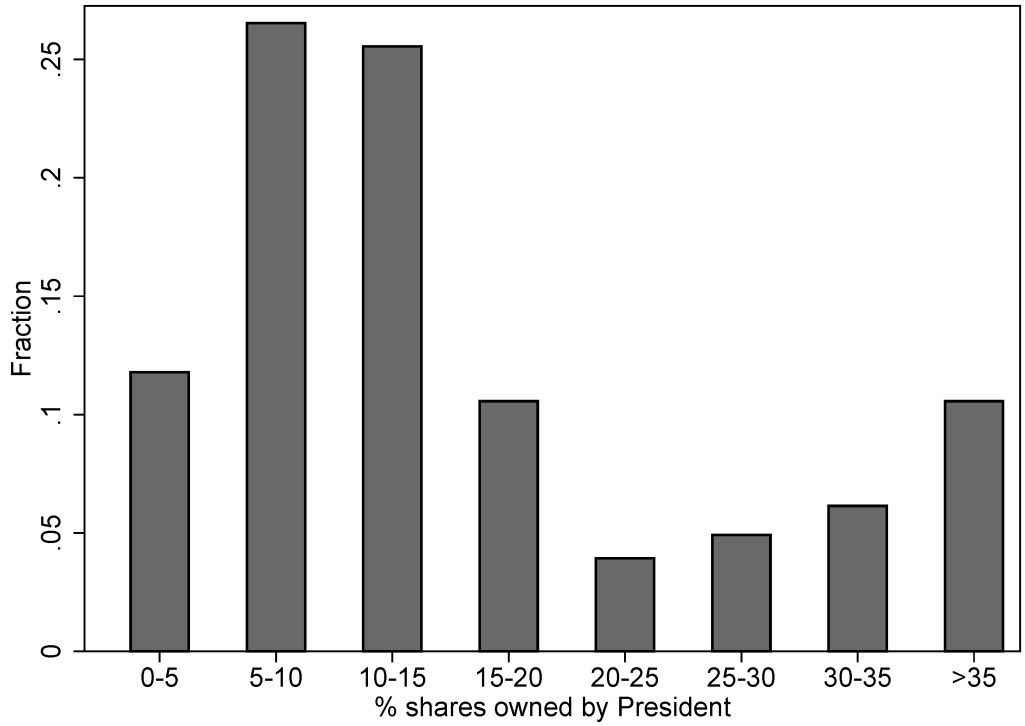
Panel B: Protection and Changes in Capital Formation, 1870-1880

	log(Δ Mfg. Capital per wkr., 1870-1880)		log(Δ Farm Capital per acre, 1870-1880)	
	(1)	(2)	(3)	(4)
Log(Protected bank capital per cap.)	-0.012**	-0.013*	-0.003	-0.008
	(0.006)	(0.007)	(0.005)	(0.005)
Log(All bank capital per cap.)	-0.018	-0.015	0.027	0.055
	(0.039)	(0.049)	(0.032)	(0.038)
Constant	0.175	0.167	-0.215*	-0.242
	(0.136)	(0.196)	(0.110)	(0.155)
Observations	60	60	61	61
Adjusted R^2	0.070	0.121	-0.020	0.098
State FE		Y		Y

Note. County level regressions. Panel A: We regress manufacturing and farm capital, as reported in census year 1870, on (1) the total amount of paid-in capital invested in the national banks and (2) the total amount of paid-in capital managed by a bank president married after the passing of a law, both measured in 1869. We normalize manufacturing capital by the number of manufacturing worker, farm capital by the number of acres, and bank capital by the number of inhabitants. If the protection status (0 or 1) of a banker is missing, we impute it with the average fraction of paid-in capital in that state, which is managed by bankers married after the passing of a law. All variables are in logs. Counties are weighted by the fraction of banks' paid-in capital for which the protection status of the banker is available. Panel B: We regress the log change in county capital formation between census years 1870 and 1880 on the same set of variables, applying the same set of weights. Standard errors in parentheses: $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$

Figures

Figure 1: Percentage of bank shares owned by president

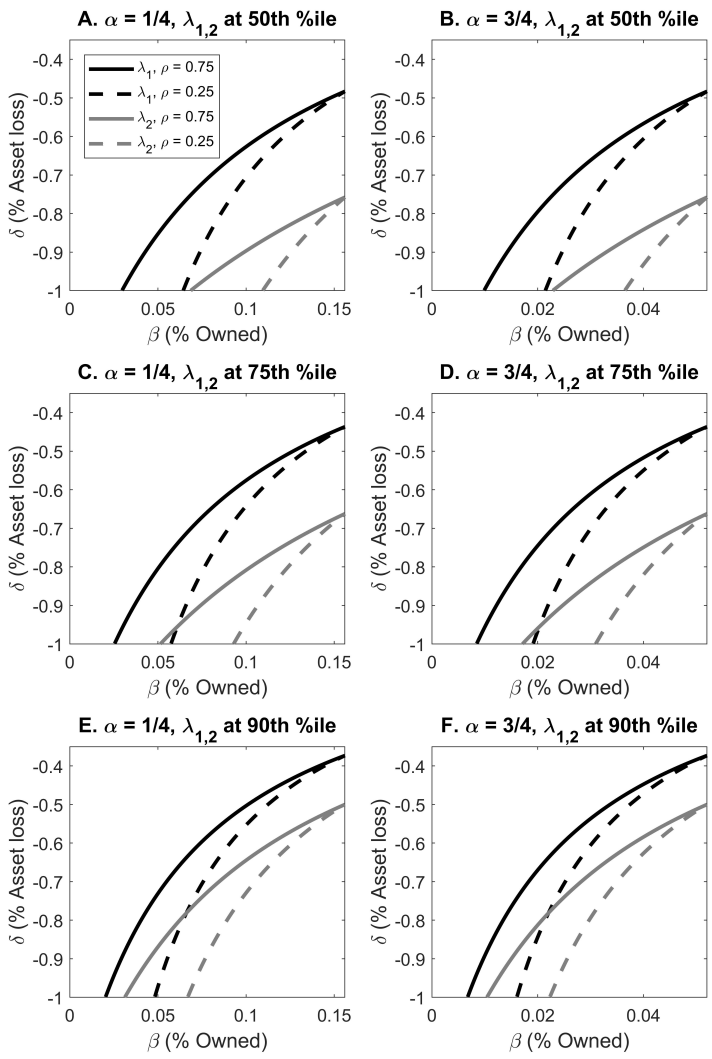


Note. This figure gives the distribution of the percentage of bank shares that were owned by a president. Data comes from the examiner reports and is only available for a small sample of 111 bankers (88 banks).

Figure 2: U.S. Industrial Production, 1867-1880

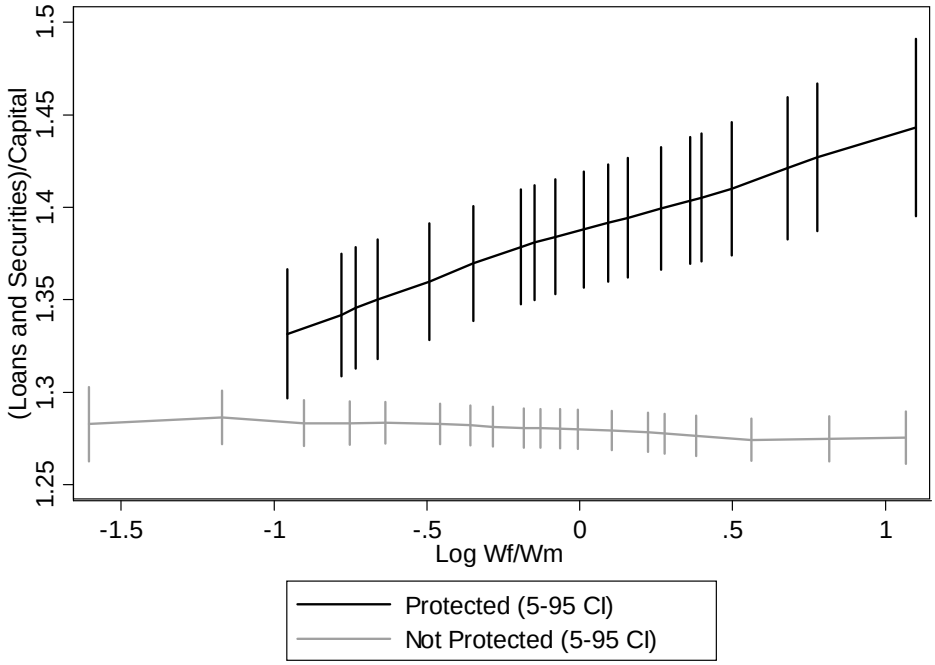
Note. Index numbers, 1867 = 100. Source: Davis (2004).

Figure 3: Back-of-the-envelope calculation



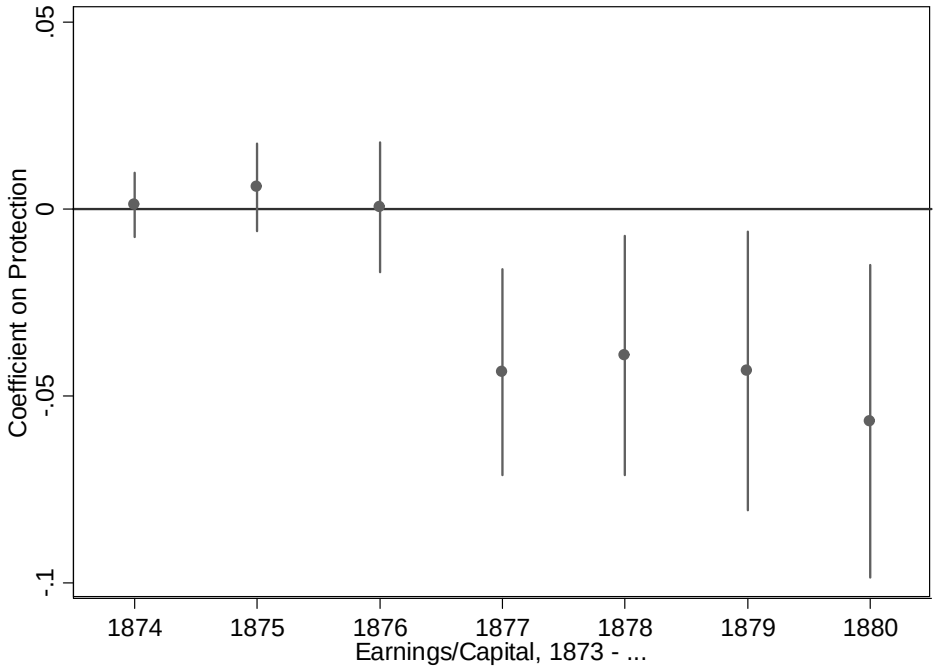
Note. This figure indicates at what shock to the value of bank assets $\delta \in [0, -1]$ the wife's wealth is at stake for bankers married before the passage of a married women's property law. The horizontal axis indicates the fraction of bank shares owned by the banker (β). The wife's wealth is at stake at any point below the lines. α: fraction of household wealth in the wife's name. λ_1: Assets / Capital. λ_2: Loans and securities / Capital (this excludes all government securities that back up the issuance of bank notes). We set these ratios at the 50th, 75th and 90th percentile for protected bankers in 1873: $\lambda_1 \in \{2.07, 2.29, 2.68\}$ and $\lambda_2 \in \{1.32, 1.51, 2.00\}$. ρ: sensitivity of household wealth (not invested in the bank) to the shock. We set the bank's capital and total household wealth equal to the median for protected bankers in 1873, \$250,000 and \$52,000 respectively.

Figure 4: Leverage and relative wealth



Note. Non-parametric local mean smoothing using kernel weighted means. Vertical lines indicate 5th-95th percentile confidence intervals. Before plotting, the x and y variables are residualized with the fixed effects and control variables of Table 6, Column 2. "Wf" and "Wm" are the wife's and husband's 1850 familial wealth. "Log(Wf/Wm)" captures how wealthy the wife was at marriage relative to the husband.

Figure 5: Profits and losses, 1873 - ...

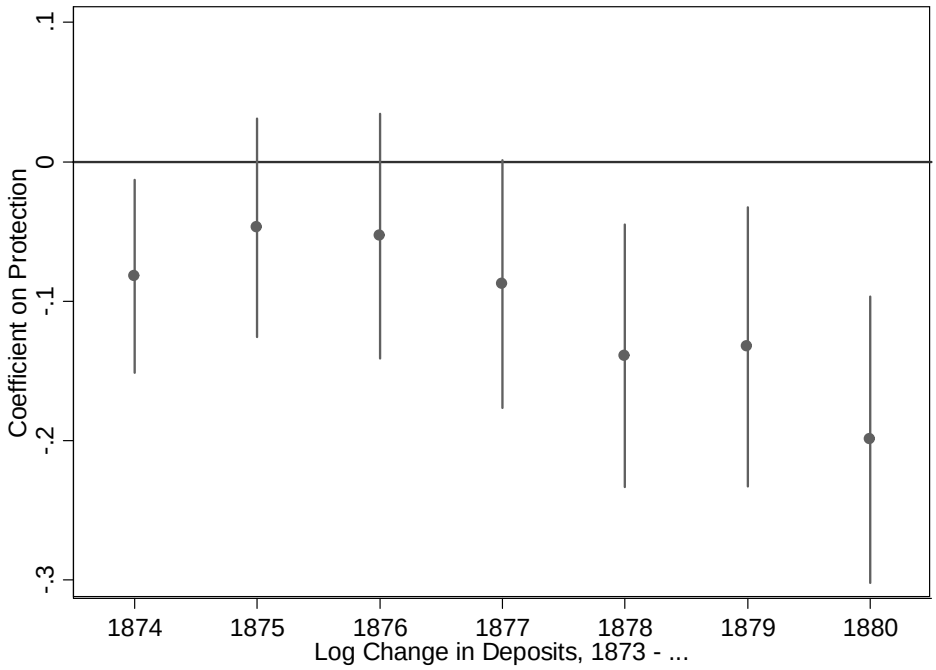


Note. The figure plots coefficient β on $Protection_{i,1873}$ from the regression

$$Earnings/Capital_{i,t-1873} = \beta Protection_{i,1873} + CountyF.E. + X_i + u$$

where $t \in [1874, 1880]$, $Earnings/Capital_{i,t-1873}$ are bank $i's$ accumulated profits and losses between 1873 and t, divided by the banks capital in 1873. $Protection_{i,1873}$ is a dummy with the value of 1 if the president of the bank in 1873 was married before the passage of married women's property law. X_i includes a dummy for Boston and for different town sizes (<5,000, 6,000 - 50,000, >50,000).

Figure 6: Change in deposits, 1873 - ...

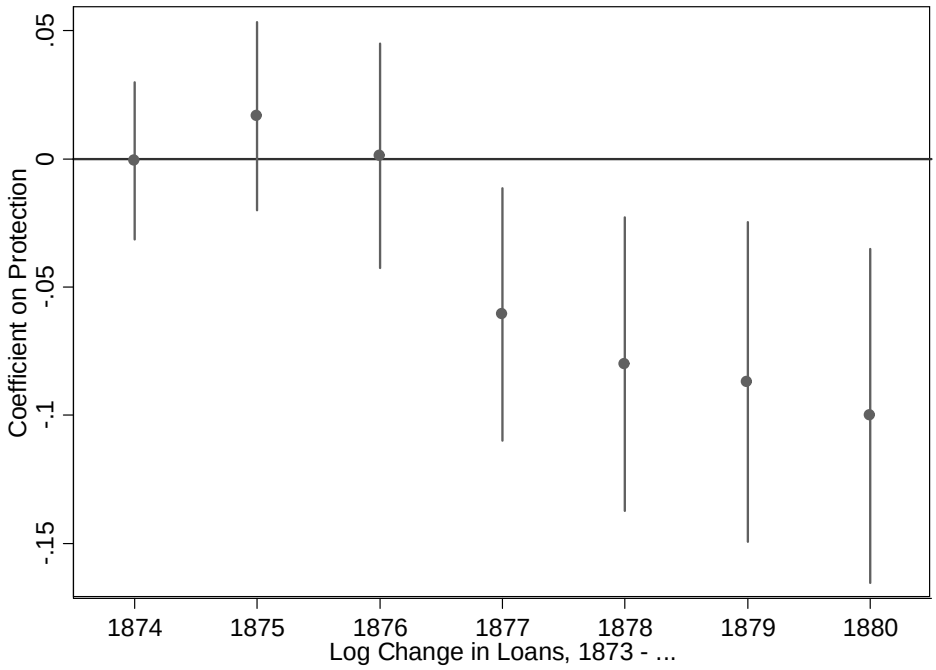


Note. The figure plots coefficient β on $Protection_{i,1873}$ from the regression

$$Log(Deposits_{i,t}) - Log(Deposits_{i,1873}) = \beta Protection_{i,1873} + CountyF.E. + X_i + u$$

where $t \in [1874, 1880]$, $Protection_{i,1873}$ is a dummy with the value of 1 if the president of the bank in 1873 was married before the passage of married women's property law. X_i includes a dummy for Boston and for different town sizes (<5,000, 6,000 - 50,000, >50,000).

Figure 7: Change in loans, 1873 - ...

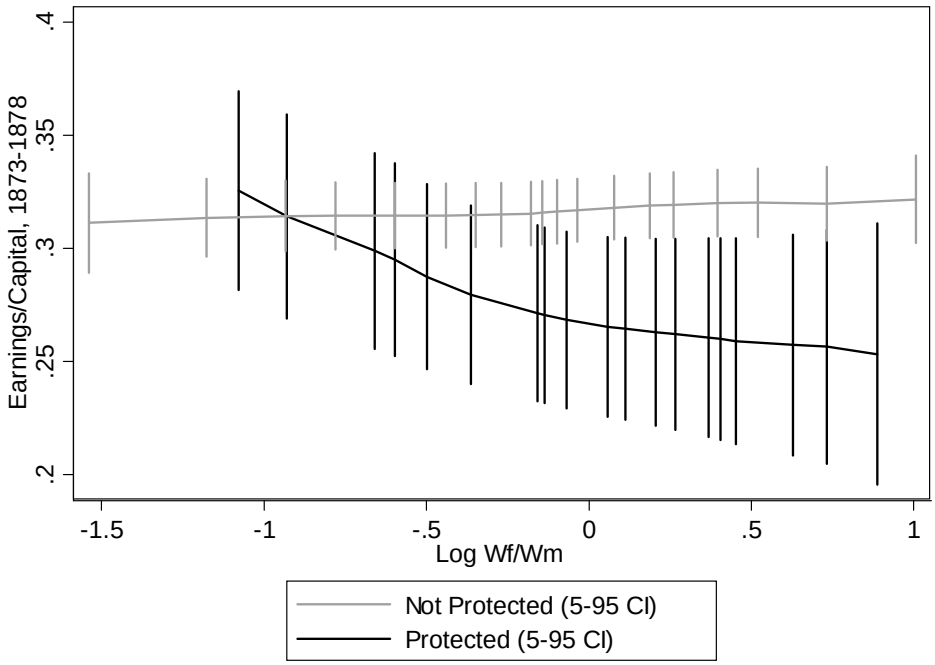


Note. The figure plots coefficient β on $Protection_{i,1873}$ from the regression

$$Log(Loans_{i,t}) - Log(Loans_{i,1873}) = \beta Protection_{i,1873} + CountyF.E. + X_i + u$$

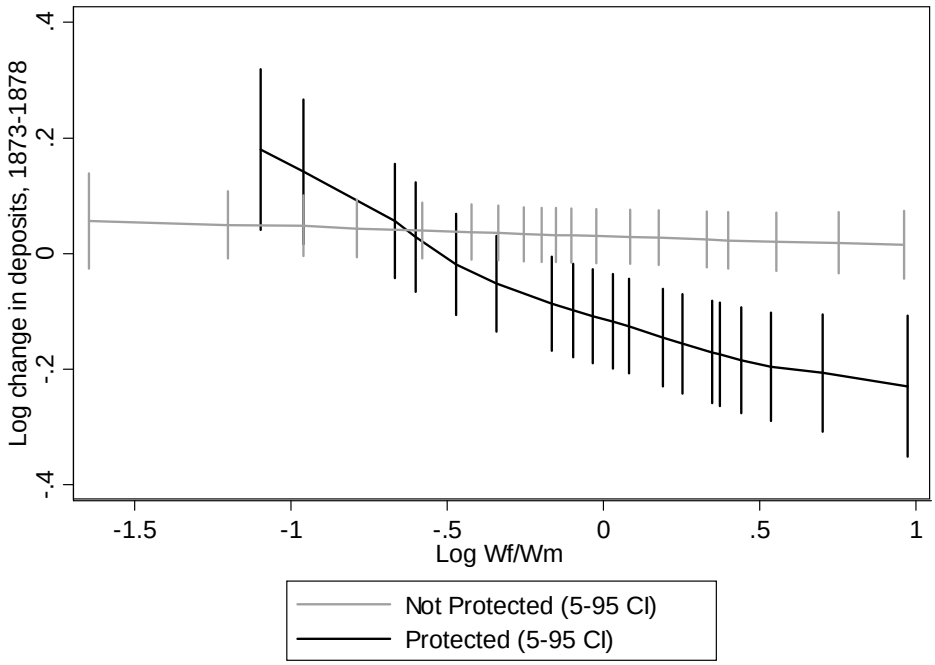
where $t \in [1874, 1880]$, $Protection_{i,1873}$ is a dummy with the value of 1 if the president of the bank in 1873 was married before the passage of married women's property law. X_i includes a dummy for Boston and for different town sizes (<5,000, 6,000 - 50,000, >50,000).

Figure 8: Profits and losses and relative wealth



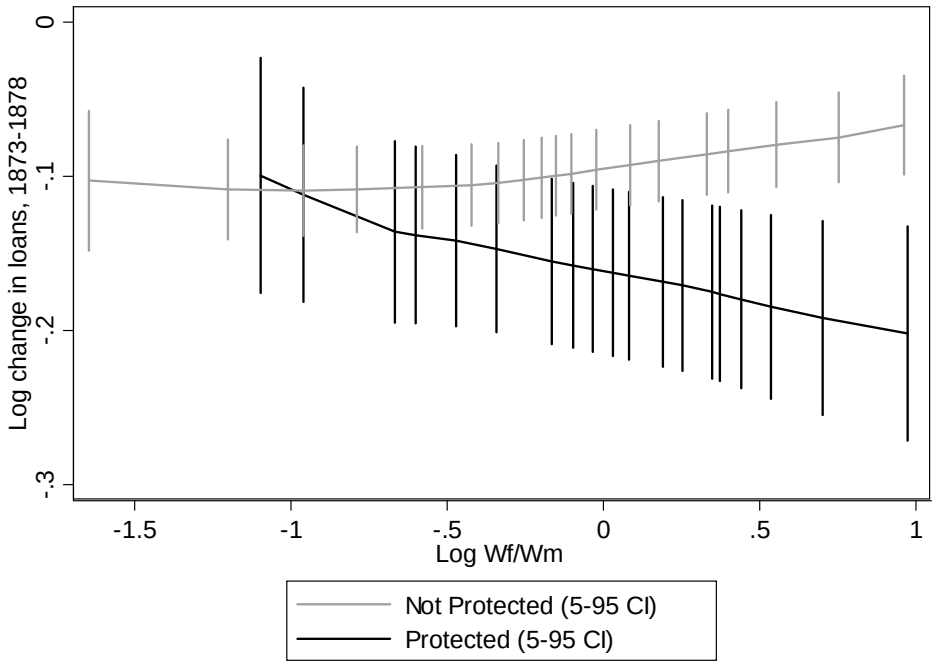
Note. Non-parametric local mean smoothing using kernel weighted means. Vertical lines indicate 5th-95th percentile confidence intervals. Before plotting, the x and y variables are residualized with the fixed effects and control variables of Table 8, Column 2. "Wf" and "Wm" are the wife's and husband's 1850 familial wealth. "Log(Wf/Wm)" captures how wealthy the wife was at marriage relative to the husband.

Figure 9: Change in deposits and relative wealth



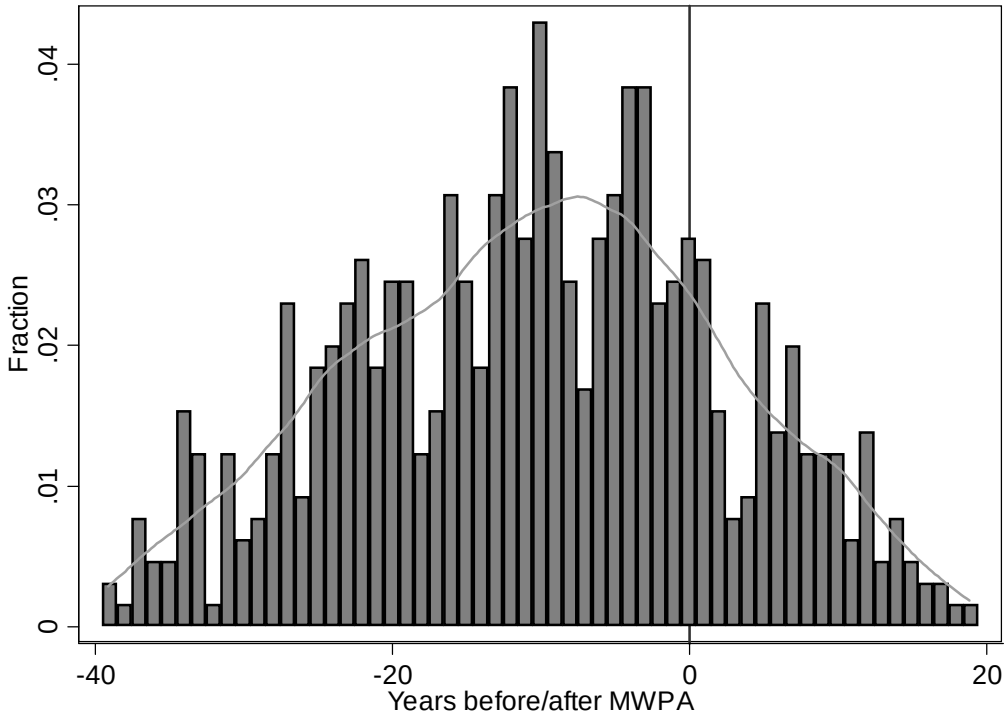
Note. Non-parametric local mean smoothing using kernel weighted means. Vertical lines indicate 5th-95th percentile confidence intervals. Before plotting, the x and y variables are residualized with the fixed effects and control variables of Table 8, Column 2. "Wf" and "Wm" are the wife's and husband's 1850 familial wealth. "Log(Wf/Wm)" captures how wealthy the wife was at marriage relative to the husband.

Figure 10: Change in loans and relative wealth



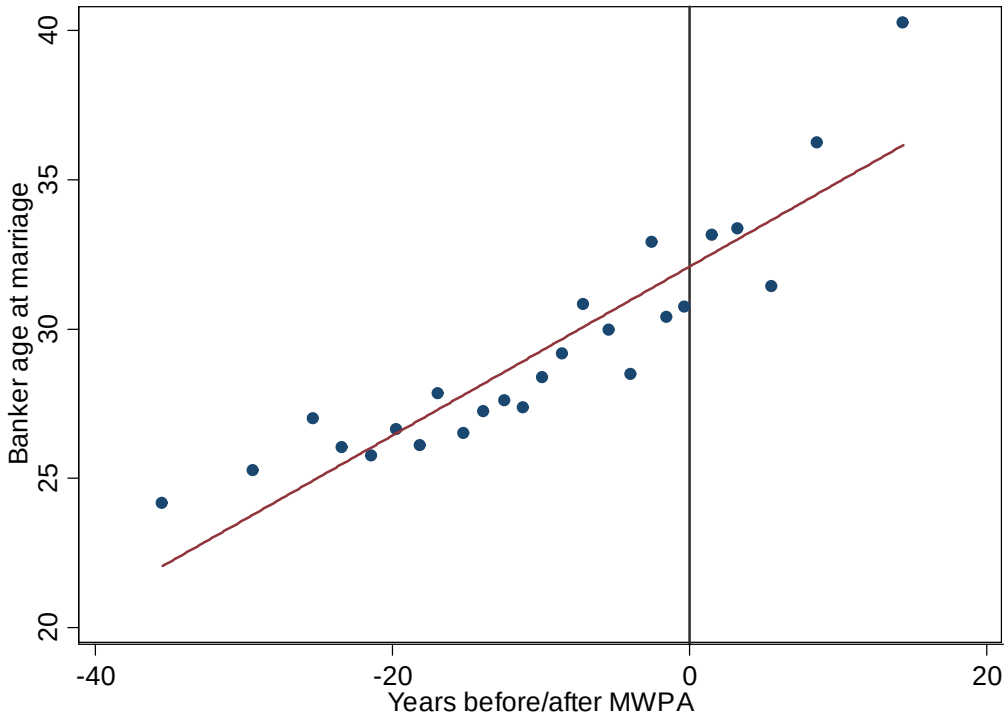
Note. Non-parametric local mean smoothing using kernel weighted means. Vertical lines indicate 5th-95th percentile confidence intervals. Before plotting, the x and y variables are residualized with the fixed effects and control variables of Table 8, Column 2. "Wf" and "Wm" are the wife's and husband's 1850 familial wealth. "Log(Wf/Wm)" captures how wealthy the wife was at marriage relative to the husband.

Figure 11: Density year of marriage, before/after passage of a MWPA



Note. This figure gives the density of bank presidents' year of marriage in the sample, counted in terms of years before or after the passage of a MWPA. The figure shows no evidence of bank presidents postponing their marriage until after the passage of a law.

Figure 12: Age at marriage vs timing of MWPA



Note. This figure uses binscatter to plot the age at marriage against the year of marriage, counted in terms of years before or after the passage of a MWPA. First marriages only. Bank presidents married after a MWPA tended to be older. The figure shows no evidence that around the time of a MWPA, bank presidents tended to marry at a younger or older age.