

Contingent Liability, Capital Requirements, and Financial Reform

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Abstract

Recently, it has been argued that banks hold an insufficient amount of capital. Put differently, banks issue too much debt relative to equity. This claim is particularly important because, all else equal, lower levels of capital put banks at greater risk of insolvency. As a result, some have advocated imposing capital requirements on banks. However, even if one accepts the proposition that banks hold too little capital, it does not necessarily follow that the correct policy response is to force banks to hold more capital. An alternative to higher capital requirements is a system in which banks have contingent liability. Under contingent liability, shareholders are liable for at least some portion of depositor losses. This alternative is not unprecedented. Historical evidence from the United States and elsewhere suggest that banks with contingent liability have more desirable characteristics than those with limited liability and that depositors tend to prefer contingent liability when given the choice. Successful banking reform should be aimed at re-aligning bank incentives rather than providing new rules for bank behavior.

Keywords banking; financial reform; contingent liability

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1 Introduction

The textbook discussion of banks often includes a consolidated balance sheet with the bank having reserves, loans, and securities as assets and with deposits and capital as liabilities.¹ A bank is considered insolvent when its liabilities exceed the value of its assets. If assets exceed liabilities, any losses experienced on the asset side of the bank balance sheet result in a corresponding loss in the bank's capital. Insolvency occurs only in the event of losses exceeding the value of capital. All else equal, a bank with more capital is at lower risk of insolvency because the value of the bank's capital fluctuates with the value of assets.

Understanding the basic analytics of a consolidated bank balance sheet provides important context for calls for financial reform in the wake of the recent financial crisis. For example, recent discussion of financial reform focuses on the role of the mixture of debt and equity finance in banking. It has been argued that banks hold an insufficient amount of capital (Miles, et. al, 2012). Put differently, the claim is that banks finance too much activity with debt than with equity. As a result, some have called for imposing capital requirements (Admati and Hellwig, 2013).

While it is true that banks that hold more capital are at lower risk of insolvency, the logic behind calls for higher capital requirements is flawed. The flaw in this argument is that it mistakes the means for the end. The objective of banking reform is conceivably to reduce the risk of insolvency among banks and other financial firms. Higher levels of capital are a means by which this can be achieved because it insulates depositors from losses, but does not address the underlying causes that lead to insolvency.

An alternative solution is to give banks an incentive to be more prudent. For example, from the Civil War until the New Deal, nationally chartered banks had double liability. Similarly, even state chartered banks had some degree of contingent liability, in some cases more stringent than federal law. In addition, many banks outside the United States had similar liability structures. Under contingent liability bank shareholders were subject not only to losses from the initial investment, but also the losses suffered by depositors. Given that bank managers and members of the board of directors were often large shareholders of the bank, in some cases required to be by law, contingent liability gave banks the incentive to be more prudent with lending by aligning the interests of the shareholders with the depositors.

One might be tempted to argue that altering bank incentives and imposing

¹In ordinary discussion it is often remarked that banks "hold capital." In reality, capital is simply the difference between assets and liabilities rather than something that is physically held. Nonetheless, for ease of exposition this paper adopts the common parlance.

capital requirements are likely to result in the same outcome with respect to the level of capital held by banks. However, even if this is true, the means by which this outcome is achieved is fundamentally different and has important implications for bank behavior both in lending standards and in the event of asset losses. Historical evidence suggests that contingent liability reduced bank risk-taking by giving bank managers and shareholders the incentive to do so. It is argued below that successful banking reform would give banks the incentive to take on less risk rather than imposing that they hold more capital.

2 The Double Liability System

2.1 Background

Under current federal law in the United States, banks are limited liability corporations. However, this has not always been the case. From the period from the Civil War until the New Deal, nationally chartered bank shareholders were subject to double liability. Specifically, The National Banking Act of 1864 established double liability for bank shareholders as follows:

The shareholders of every national banking association shall be held individually responsible, equally and ratably, and not one for another, for all contracts, debts, and engagements of such association, to the extent of the amount of their stock therein, at the par value thereof, in addition to the amount invested in such shares ... (U.S. Revised Statutes Sec. 5151 (1875) 12 U.S.C., Sec. 63)

In short, this law held bank shareholders responsible for their initial investment in the bank as well as an amount equal to the par value of the shares in the event of insolvency in order to repay depositors. Under limited liability, shareholder losses are limited to the value of the initial investment in the event of insolvency. A regime of contingent liability is therefore unique in the sense that it requires shareholders to compensate depositors for losses out of their personal wealth if the remaining assets of the bank are insufficient to cover liabilities.

The law applied only to nationally chartered banks, but 35 states imposed double liability on shareholders (Vincens, 1957). Other states imposed even more stringent laws. For example, states like Colorado imposed triple liability on shareholders whereas California adopted a system of unlimited liability (Vincens, 1957).

Some form of contingent liability for banks was not unique to the United States. In the 19th-century, many banks in the United Kingdom were subject to multiple rather than limited liability. Similar to the United States, Canadian

banks were also subject to double liability. The double liability structure was not phased out in Canada until 1934, which coincided with the creation of the Bank of Canada.

The imposition of double liability might seem odd to contemporary legal and economic scholars because limited liability regimes exist in context of most modern economic interactions. Nonetheless as Evans and Quigley (1995) argue, broader liability structures, including unlimited liability, have the potential to overcome information asymmetries between creditors and shareholders. For example, if bank shareholders can push some of the losses onto depositors, there is an incentive for the bank to invest in riskier assets in an attempt to earn a larger profit. Such is the case under a limited liability system. In the case of banking the purpose of imposing double liability on shareholders is to align the incentives of bank managers, boards of directors, and other bank shareholders with the interests of depositors. Historically the incentives of bank decision-makers were often directly changed as a result of the fact that many states had laws that required members of the boards of directors to purchase a minimum amount of equity in the bank in which they served this role. In addition, federal law required that members of the board of directors of a bank had to own at least \$1,000 worth of stock in the bank (Mitchener and Richardson, 2013). Under a contingent liability regime the ability of the shareholders to pass along losses to depositors is limited. A bank with unlimited liability, like those in California or Scotland, could not pass along any of the losses to depositors. Contingent liability structures therefore internalize, at least to some degree, the losses borne by depositors in the event of insolvency.

2.2 The Historical Record

As noted above, nationally chartered banks in the United States were subject to double liability for three quarters of a century from 1865 until 1933. Many states adopted similar statutes, some of which that were more stringent than at the national level. As such, it is important to consider the performance of banks operating under contingent liability and limited liability both within the National Banking Era and across time as the liability structure was changed as a part of New Deal legislation.

The era of double liability in the United States was largely a success. Macey and Miller (1992), for example, show that despite the difficulty and costliness of collecting assessments from shareholders, over 50% of such collections were received over the entire era. While this might not seem like a high success rate, it is important to remember that many of the shareholders of the bank during this era were bank managers and board members who often faced corresponding

issues of personal solvency. Assessing losses as a percentage of total liabilities is more indicative of the relative successfulness of this era than collection rates alone. According to Macey and Miller (1992) the depositor losses as a percentage of total liabilities were only 0.044% from 1865 - 1934. Even during the period from 1930 - 1934, when bank failures were more common, losses only amounted to 0.072% of total liabilities. In addition, the authors find that voluntary liquidations significantly outnumbered forced liquidations due to insolvency.

Contingent liability also reduced risk-taking among banks. Grossman (2001) finds that banks in states with contingent liability had lower failure rates, higher capital ratios, and higher liquidity ratios than banks in states in which banks had limited liability. This evidence, however, is weaker for the 1920s.

Mitchener and Richardson (2013) find stronger evidence that contingent liability reduced risk-taking among banks. The authors use the differences in the dates of both the adoption of and departure from contingent liability regimes across states to examine the changes in risk-taking behavior through the early 20th-century. In particular, Mitchener and Richardson (2013) find that double liability (or greater) reduced leverage ratios. Banks with double liability also maintained a larger share of retained earnings as a percentage of loans relative to those with limited liability. The higher percentage of retained earnings meant that banks were in better position to sustain significant declines in the value of their assets. Finally, the authors' evidence that the increase in bank leverage after the New Deal is the result of the fact that double liability was replaced by limited liability with deposits insured by the Federal Deposit Insurance Corporation.

Despite this relative success, the system of double liability in the United States ended in 1933 with amendments to the National Banking Act and the Federal Reserve Act. In particular, these amendments removed double liability from shares issued prior to June 1933. In 1935, further amendments were made to eliminate double liability for all shares outstanding regardless of the issue date to take effect in 1937. In conjunction with the changes made to the liability regime in 1933, the U.S. government created the Federal Deposit Insurance Corporation in an effort to insure depositors against losses. Vincens (1957) attributes this policy shift to the substantial cost associated with collections from shareholders as a result of both the number of bank failures and the severity of the Great Depression. Macey and Miller (1992) similarly note that the shift from double to limited liability was due to the dispersion of shareholders, the corresponding detachment of decision-making of ordinary shareholders, and the fact that many shareholders during the period from 1930 - 1934 were personally insolvent and therefore unable to pay the assessments.

The shift from double liability to limited liability in the United States was therefore not a shift in the preferences of depositors for limited liability, but

rather one that was imposed by the political process. An interesting question is to consider what contractual arrangements banks and depositors would agree to in the absence of legal and political forces. The Scottish experience with contingent liability is particularly useful in this context.

At the beginning of the nineteenth-century in Scotland, the three largest and most prominent banks were chartered with limited liability. However, over the subsequent half-century a significant number of unlimited liability joint stock banks emerged and “by the end of the free banking period in 1844, they had surpassed the limited liability firms as the dominant element in the Scottish banking system” (Evans and Quigley, 1995: 505).² The failure of the City of Glasgow Bank in 1878, however, represented a critical juncture in Scottish banking system as it significantly called into question the desirability of unlimited liability. While Scottish banks were inclined to eliminate unlimited liability, there remained concern “about the stability of the banking system if some of the risk assumed by shareholders was simply transferred onto depositors” (Evans and Quigley, 1995: 508). Rather than adopt limited liability, however, the Scottish banks adopted multiple liability. The change to multiple liability meant that shareholders were still responsible for the losses to depositors, but that there was an upper bound on this liability. Also, depositors had an incentive not only to monitor the wealth of shareholders, as was the case under unlimited liability, but also to monitor the bank regarding issues related to solvency.

The decision of the Scottish banks to offer multiple liability rather than limited liability therefore offers a potential comparison of the desirability of each structure in a market environment. Put differently, since banks with multiple liability competed alongside those with limited liability, it is possible to evaluate the preferences of depositors for one structure relative to the other. Evans and Quigley (1995) present evidence that suggests that the market share of the limited liability banks declined after the banks with unlimited liability changed to multiple liability. In fact, deposits in the banks with multiple liability grew at a rate over twice as high as the deposits in the limited liability banks. The authors also note that the state chartered banks petitioned the government to amend their charter such that the banks would have both Treasury oversight and multiple liability in order to gain a competitive advantage. Evans and Quigley (1995) argue that the change in market share and the desire of the chartered banks to amend their charter represent evidence that banks with multiple liability were preferred to the chartered, limited liability banks in the context of market competition. This provides strong evidence of depositor preferences toward some form of contingent liability.

²See also the comparison of banks with limited and unlimited liability by White (1984).

3 Incentives or Rules?

If one accepts the premise that banks hold too little capital, then it is natural to ask both why such circumstances exist and to what extent policy can mitigate this inefficiency. Much of the analysis pertaining to why banks hold an insufficient amount of capital emphasizes the favorable treatment of debt relative to equity in the corporate tax structure.³ Similarly, bank bailouts by governments can provide an increased incentive toward leverage and the purchase of risky assets. The same can be said about government-provided deposit insurance.

If all that is preventing banks from holding the optimal level of capital is the tax system, deposit insurance, and government bailouts, it would seem that the correct policy would be to eliminate the favorable tax treatment of debt, reduce or eliminate the deposit insurance, and to end the process by which large banks are bailed out by the government. Regardless of the desirability of these policies, they are unlikely to resolve the shortage of capital on their own. As noted above, there is a clear difference in the level of capital held before and after the shift in policy in 1933. As such, limited liability plays a significant role in the amount of capital that banks desire to hold, even when other factors are constant.

Instituting capital requirements is a much more politically feasible policy than any of the above options. Nonetheless, the emphasis on capital requirements is misguided. While higher capital requirements reduce the risk of insolvency in the context of a balance sheet exercise, it is altogether unclear that these requirements would do much to make banks more prudent. For example, it is possible that banks would increase exposure to risk in an attempt to earn the same level of profit that they would have under their preferred mix of debt and equity. This is especially true if there is an expectation of government bailouts in the event of insolvency.

More importantly, however, is the fact that the imposition of capital requirements have adverse consequences in the event that banks suffer losses. Consider the following example of two banks holding the same level of capital. The first bank, which will be called Bank A, is holding the level of capital because of the decisions made by the managers. The second bank, hereafter Bank B, is holding the particular level of capital because of the imposition of capital requirements. Now suppose that each bank suffers a loss of the same size, which is assumed to be less than the value of its capital. For both banks capital declines. In the case of Bank A the managers of the bank have the ability to determine when to raise more capital. However, in the case of Bank B the bank is forced to increase capital in order to maintain a level consistent with the capital requirements. This

³See, for example, Auerbach (2002), Graham (2003), Desai, et. al (2004), Cheng and Green (2008), and Weichrieder and Klautke (2008).

might be particularly difficult for the bank to do if the loss suffered by the bank is particularly large or if such losses are widespread in the banking system.

The shift toward capital requirements also put strong demands on bank regulators. Mitchener and Richardson (2013: 23) note that

Capital requirements . . . place demands on regulators to verify balance sheet particulars with regularity, and then report these publicly to achieve market discipline. Executing this task, however, is complicated by reporting standards (marking to market versus book value) and the opacity of many types of assets. Banks have become increasingly adept at satisfying regulatory capital by shifting assets “off the balance sheet.”

Capital requirements exacerbate the shift in the burden of risk management to the regulator as opposed to the bank and its shareholders. In addition, capital requirements provide banks with an incentive to circumvent the intentions of the regulation while remaining officially compliant.

Finally, much of the analysis that pertains to why banks hold an insufficient amount of capital examines the choice of the mix between debt and equity as though it is solely the decision of the bank. In reality the observed mixture of debt and equity is the equilibrium outcome of the interaction between banks and their liability holders. This distinction is important because the equity and debt of a bank yield different services for the liability holders of banks. Debt issued by the bank in the form of deposits also serve as a medium of exchange whereas bank equity does not. As a result, under certain circumstances banks might issue more debt relative to equity because the former is preferred by liability holders.⁴ In this case, it is possible that the imposition of capital requirements is welfare-reducing, or at least that optimal levels of capital have been overstated.

By contrast, requiring that bank shareholders are subject to contingent liability provides an incentive for banks to internalize any potential losses to depositors since bank shareholders are responsible for those losses. Realigning the incentives of shareholders to be consistent with those of depositors has a number of advantages relative to capital requirements. For example, the mix between debt and equity for a bank with contingent liability is chosen by the bank. Banks with a riskier portfolio of assets might decide to finance a greater share of its activity through equity rather than debt. Correspondingly banks with less risky portfolios might choose a smaller fraction of equity finance.

⁴Hendrickson and Holt (2013) show that when there is a shortage of transaction assets, bank liability holders strictly prefer deposits to equity. This might explain why Macey and Miller (1992) find evidence that banks with double liability often held less capital than those with limited liability. For more on asset shortages, see Caballero (2006).

Capital requirements are unlikely to be risk-adjusted. With limited liability banks do not have an incentive to internalize losses to depositors in the event of insolvency and are therefore likely to choose a riskier portfolio of assets. Compliance with capital requirements in this instance provides a bank with the appearance of propriety even if the bank is at greater risk of losses and insolvency. In addition, even if capital requirements are risk-adjusted, this adjustment would be at the discretion of regulators rather than bank managers and shareholders. In the context of limited liability, it is possible that regulation could improve on the allocation of bank resources in the event that banks take on too much risk since shareholders do not have an incentive to internalize depositor losses. However, shareholders with contingent liability are likely to have better assessments of the risk in comparison with regulators since the shareholders would stand to lose some amount of their personal wealth in the event of a bank failure.

This point is especially important given the nature of regulation. It is possible, for example, that a system in which bank shareholders have limited liability and regulators impose risk-adjusted capital requirements could result in an efficient use of resources. This statement, however, relies on two critically important assumptions. First, the ability of bank regulators to promote an efficient allocation of resources assumes that regulators are guided solely by the interests of promoting solvency in the banking system and ignores the political economy aspect of bank reform and regulation.⁵ In addition, a system of limited liability with risk-adjusted capital requirements presents requires a particular sort of specialized knowledge that not be possessed or even obtained by regulators.

Even the event of a significant decline in the value of its assets, a bank with contingent liability would be permitted to have a lower level of capital at its own discretion. Banks with contingent liability would not be forced to raise capital in the wake of large and significant losses on the asset side of the balance sheet. Even so, bank shareholders would still have an incentive to ensure that the bank take the necessary steps to prevent such large losses and lower levels of capital from increasing the risk of insolvency.

Contingent liability also gives bank shareholders the incentive to be proactive in the event of large and significant losses. If shareholders believe that the bank is at greater risk of insolvency, there is an incentive to voluntarily liquidate assets rather than risk personal wealth in the event of a forced liquidation. This incentive is clear from historical evidence. As noted above, Macey and Miller (1992) document the fact that voluntary liquidations significantly outnumbered forced liquidations during the period in which U.S. bank shareholders were sub-

⁵For a discussion of the political economy aspect of regulation with particular attention to the recent financial crisis in the U.S., see Johnson and Kwak (2010).

ject to double liability.

Overall, contingent liability provides banks with more flexibility in decision-making and in dealing with declines in asset values while also providing bank shareholders with better incentives to monitor risk than capital requirements. Imposing capital requirements would continue the three-quarter-century long trend of shifting the burden of assessing risk from the bank and its shareholders to regulators. Yet the historical evidence shows that shifting risk management from banks and their shareholders to firms has led to greater risk-taking on the part of banks. Concerns about bank insolvency and the potential fragility of the banking system begin with the problem of risk management. Capital requirements treat a symptom of the problem rather than the problem itself. Contingent liability offers banks an incentive to adjust their behavior and addresses the problem of the riskiness of bank assets rather than merely a symptom.

4 Marketability and Transferability

While theory and evidence presented above suggest that a contingent liability regime provides better incentives for banks than capital requirements, the main criticism of contingent liability regimes concerns the marketability and tradability of shares.⁶ Legal scholars have argued that shares with unlimited liability shift the distribution of risk to wealthier shareholders (Halpern, et. al, 1980).⁷ In the event of bankruptcy, if a number of shareholders are insolvent as well, the burden of repayment for liabilities would shift to the wealthiest of the remaining shareholders. This is potentially problematic because of the implications for asset pricing. A shareholder that is wealthy relative to other shareholders would value the stock at a price below that of the other shareholders. Symmetrically, shareholders with little wealth relative to other shareholders would have a higher valuation for the stock. Standard asset pricing theory suggests that the price of a stock should be equal to the present discounted value of its future dividends. If the relative wealth of the shareholders affects the valuation of individual shareholders, then it might be difficult to ascertain a common market price. It is therefore argued that regimes of unlimited liability “create a significant measure of uncertainty in the valuation of securities and threaten the existence of

⁶This view dates back at least to Walter Bagehot’s writing in *The Economist* and the *Saturday Review*, who argued that unlimited liability joint stock banks that existed at the time of his writing would ultimately have shareholders with few assets. For more on Bagehot’s view, see Hickson and Turner (2003).

⁷See also Easterbrook and Fischel (1985) and Grundfest (1992). In relation to this paper more specifically these authors argue that minimum-capitalization requirements are attempts to reduce the social costs that result from limited liability regimes.

organized securities markets” (Halpern et. al, 1980: 147).

Woodward (1985) also raises concerns about the transferability of shares in the absence of limited liability. Woodward argues that under contingent liability, if only the current shareholders were subject to the liability, then the most wealthy shareholders would sell shares in the threat of bankruptcy. Those willing to buy shares (assuming symmetric information) would be those with too little wealth to be pursued in the event of a bankruptcy. In this case, the contingent liability regime would become a de facto limited liability regime. It would seem that unlimited liability regimes would require the limitation of transferability of shares to prevent this outcome.

Concerns about the marketability and transferability of shares, however, are largely unfounded. For example, much of the criticism of contingent liability regimes assume that such a regime would be one of unlimited liability and that the liability would be joint and several. Put differently, this assumption implies that in the event of bankruptcy the difference between liabilities and assets would be assessed to shareholders in proportion to their holdings. In the event that some shareholders were insolvent or otherwise unable to meet this obligation, their assessments would be transferred to wealthier shareholders. This increases the costs associated with holding shares because a shareholder would now need to have information about the wealth of fellow shareholders in order to determine the liability associated with owning shares. All else equal, this characteristic would certainly reduce the marketability of shares. As Hansmann and Kraakman (1991) argue, however, unlimited liability does not imply that the liability be joint and several. In fact, the contingent liability regime that existed in the United States was not joint and several, but rather shareholder assessments were determined by the value of their shares determined by the receiver in the event of bankruptcy.

Much of the concern surrounding the marketability and the transferability of shares in companies with contingent liability is based on theoretical work. In particular, the arguments described above suggest that when shareholders are subject to unlimited liability, the market for the firm’s shares will be less liquid, ownership will be more concentrated, and there will be evidence of higher risk reflected in share prices. The existing empirical evidence casts doubt on these concerns.

Grossman (1995), for example, examines the experience of American Express during the 1950s. American Express was initially chartered in 1850 as an unlimited liability joint stock company. American Express did not become a limited liability corporation until 1965. Grossman examines the experience of American Express in the 1950s because it provides an example of a firm in which shareholders were subject to unlimited liability at a time when the vast majority of

other firms' shareholders were subject to limited liability. The evidence shows that shares of American Express were dispersed among 25,000 shareholders.⁸ Shares in American Express were also listed in the financial press among other actively traded stocks, which provides indirect evidence that shares were not illiquid relative to shares of firms subject to limited liability.⁹ In addition, using a capital asset pricing model, Grossman fails to find evidence that American Express shares were more risky than the overall market. This evidence casts doubt on the hypothesis that shares subject to pro rata unlimited liability would be subject to limited marketability and transferability.

The experience of unlimited liability joint stock banks in Ireland in the 19th-century provides further evidence against the hypothesis that shares with unlimited liability are subject to limited marketability and transferability. The argument made by Halpern et. al (1980) and others is that firms with unlimited liability would have share prices that were functions of both the expected income of the firm and the wealth of the shareholders and that this characteristic would prevent the marketability of shares. The inability to determine a common market price implies that wealthier individuals would pay lower prices for shares and that less wealthy individuals would pay a lower price. Using detailed information from the archives of the Ulster Banking Company in Ireland during the 19th-century, Hickson and Turner (2003) fail to find any evidence that wealth had an effect on the price paid by shareholders. In subsequent work Hickson and Turner (2005) show that a liquid market existed for the shares of Ulster Banking Company and that there was no identifiable change in liquidity after the bank became a limited liability corporation in 1883.

Similarly, the experience of Irish banks provides evidence against Woodward's (1985) critique that unlimited liability would create an incentive for wealthy shareholders to sell shares when the bank was threatened with bankruptcy. While the idea that wealthy shareholders would like to escape their liability is reasonable, shareholders of Irish banks were subject to post-sale-extended liability in which shareholders were subject to assessments three years from the sale of shares.¹⁰ Shareholders that foresaw an impending bankruptcy were not capable of avoiding the liability.

⁸As Grossman (1995) notes, the number of shareholders implies that on average each shareholder owned just over 80 shares.

⁹American Express shares were traded over the counter and volume was not publicly recorded. Indirect evidence is therefore needed to assess liquidity.

¹⁰This was amended in the late 19th-century to limit the post-sale liability to one year from the sale.

5 Conclusion

In the wake of the recent financial crisis, advocates of policy reform have emphasized the imposition of greater capital requirements as a way to prevent bank insolvency. The intuition behind this recommendation is that capital provides a buffer to depositors in the event of significant declines in the value of assets on a bank's balance sheet. All else equal a higher level of capital (a greater provision of equity finance) reduces the risk of insolvency and protects depositors from losses.

While the logic of the advocacy of greater capital requirements in reducing insolvency is not at issue, there is reason to believe that meaningful banking reform requires a much different approach. For example, banks with greater capital requirements might be at a reduced risk of insolvency, but the imposition of such requirements does not necessarily alter the incentives of the bank. Two banks with balance sheets of the same size, holding the same amount of capital, might have significantly different risk profiles on the asset side of the balance sheet. Nonetheless, each bank would be compliant with regulation. In addition, with capital requirements banks would be forced to raise capital in the aftermath of significant declines in the value of assets on the bank's balance sheet; a time when banks are likely to find such actions most difficult.

An alternative to capital requirements is to provide banks with an incentive to internalize the losses faced by depositors in the risk of insolvency. One way to alter bank incentives is to impose some form of contingent liability, in which bank shareholders would not only lose the value of their initial investment in the event of insolvency, but would also be subject to compensating depositors for any losses. This is in stark contrast to the limited liability of bank shareholders under present law. Under the present system, bank shareholders have no responsibility to compensate depositors. Contingent liability therefore causes bank shareholders to internalize the costs to depositors of insolvency. As a result, contingent liability realigns the incentives of bank shareholders to be cognizant of the preferences and concerns of depositors, which results in less risky behavior on the part of the bank.

Historical evidence suggests that contingent liability regimes have more desirable characteristics than limited liability regimes. Evidence from the United States shows that banks with contingent liability took on less risk and less leverage than the limited liability counterparts. There is also evidence in the U.S. that contingent liability led to voluntary liquidations that seemingly reduced the number of insolvencies among banks during this period. In addition, the successes of contingent liability do not appear to be confined to the United States. The available evidence on Scotland during the 19th-century lends credence to

the view that contingent liability banks were preferred to those with unlimited liability during a time at which these banks competed with one another for market share.

Nonetheless the main criticism of contingent liability regimes is that they limit the marketability and transferability of shares and therefore impede investment and economic growth. This claim has been subject to much debate, however, arguments against contingent liability regimes are largely theoretical. The empirical evidence on the subject is limited because unlimited liability regimes largely existed prior to the emergence of organized financial markets or in cases in which there is little or no measure of comparison. Existing empirical evidence, however, shows that the theoretical concerns surrounding contingent liability regimes are largely unfounded. This evidence provides further support for the claim argued above that contingent liability regimes are preferable to limited liability regimes with capital requirements.

A system of contingent liability is theoretically preferable to a regime of limited liability on the grounds that it provides better incentives for banks. In addition, the historical evidence suggests that regimes of contingent liability have many preferable characteristics relative to those of limited liability. Taken as a whole it should be clear that contingent liability provides a preferable alternative to the present regime of limited liability and that meaningful banking reform should seek to realign the incentives of banks rather than merely imposing capital requirements.

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