The Capital Conundrum*

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After a review of the theory of regulation of bank capital, this paper notes that the pervasive influence of the safety net provides both a rationale for regulating bank equity capital and an obstacle to inferring what the optimal capital-to-asset ratio would be for a bank in the absence of the safety net (or expectations of an ex post bailout). This paper supports the view that the cost of bank equity capital is less than is frequently assumed, but notes that many of the frictions that lead to optimal equity-to-asset ratios for other firms are likely to apply to banks. Moreover, the analysis of bank capital structures is further complicated by the fact that a significant proportion of bank liabilities—deposits—are an important product offered by banks as well as a means of increasing leverage. After a brief overview of the potential advantages of a requirement for contingent convertible capital (CoCo) instruments in addition to higher equity-to-asset ratios, the paper argues that, given the uncertainty about the optimum equity capital requirement, a substantial CoCo requirement provides additional advantages, which include stronger incentives for banks to recapitalize before they encounter serious difficulties, enhanced incentives for banks to adopt the best possible risk-management measures, and (so long as the regrettable asymmetry between interest and dividends remains) reduced incentives for banks to move activities to the shadow banking system. A substantial CoCo requirement protects society from loss as effectively as an equivalent amount of additional equity capital, but CoCos enable a bank to recapitalize automatically if it falls short of the equity capital requirement. This recapitalization will occur instantaneously and at lower

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cost than a new issue of equity under conditions of stress. Instantaneous recapitalization will give the bank an opportunity to restructure or find a private solution and will provide the regulatory authorities with sufficient warning to prepare a rapid resolution if necessary.

JEL Codes: G21, G28, and G32.

Rigorous academic thinking about capital structure began with the seminal article by Miller and Modigliani (M&M) (1958). A quartet of eminent financial economists (Admati et al. 2011) have argued that, with regard to bank capital regulation, M&M was not only the first word, but should also have been the last. They have expanded, in considerable detail, some of the arguments Merton Miller (1995) presented at a Wharton conference in 1994.

At root the argument is very simple and intuitively appealing. In the frictionless world assumed by M&M, a firm's choice of capital structure cannot affect the value of its assets. Thus, in the context of bank regulation, where default of a large, complex financial institution is assumed to have significant spillover costs on the rest of society, banks should be required to issue a very high proportion of equity capital without loss of value. This high proportion of equity may seem absurd to some, but the capital structure of mutual funds is 100 percent equity and this sector of the financial services industry holds assets that exceed 80 percent of the assets of U.S. commercial banks (Federal Reserve Board 2011). It differs markedly, however, from the capital structure banks have chosen (subject to regulatory constraints).

Til Schuermann (2011) has made the tongue-in-cheek observation that the wide dispersion of equity-to-asset ratios across firms—varying from single digits to 100 percent—suggests that M&M may not be wrong. The choice of capital structure among firms may be essentially a random decision without impact on the value of the firm. When firms are grouped into industries, however, a different pattern emerges. (See table 1.) Although some dispersion exists among firms within a particular industry, it is less than the dispersion found across industries. Moreover, even though leverage varies markedly across industries, industries earn remarkably similar

Table 1. Profitability and Leverage across Industries (Medians across Years and Institutions)

	Return on Assets[a]				Return on Equity[b]				Leverage[c]			
	95–09	95–00	01–07	08–09	95–09	95–00	01–07	08–09	95–09	95–00	01–07	08–09
Banks	0.6	0.7	0.7	0.2	12.2	13.3	12.8	3.2	18.3	17.8	19.1	17.4
Non-Bank Financials	0.9	1.0	1.0	0.5	11.2	12.3	11.4	5.4	12.1	12.5	12.1	10.8
Non-Financials	3.2	3.0	3.4	2.8	11.7	10.9	12.8	9.8	3.0	3.0	3.0	2.9
Energy	5.9	3.9	8.1	5.2	14.2	10.8	18.6	10.1	2.4	2.5	2.3	2.2
Materials	4.3	4.3	4.7	3.2	10.6	8.8	13.1	8.5	2.5	2.4	2.5	2.7
Industrials	2.1	1.4	2.4	2.3	10.4	8.3	11.5	11.0	5.4	6.1	5.4	4.8
Consumer Discretionary	2.2	2.1	2.6	1.1	9.1	8.9	10.4	4.2	3.4	4.0	3.1	3.1
Consumer Staples	5.4	5.2	5.7	5.1	13.0	12.4	13.8	11.7	2.5	2.4	2.5	3.0
Health Care	8.1	8.0	8.3	6.5	18.2	18.8	18.5	15.3	2.3	2.3	2.3	2.3
Information Technology	5.1	5.1	5.0	5.6	12.8	15.1	12.8	10.3	2.2	2.2	2.1	2.0
Telecom Services	3.2	3.6	2.8	2.9	8.5	10.8	8.4	6.4	2.6	2.7	2.6	2.7
Utilities	2.7	2.5	2.7	2.7	10.8	9.3	11.6	11.9	4.1	3.7	4.4	4.0

[a]Net income over total assets, in percent.
[b]Net income over total shareholder funds, in percent.
[c]Total assets over total shareholder funds.
Source: Bloomberg.

returns on equity. It is also notable that among all industries, banks have the highest leverage.

A considerable amount of work in corporate finance since M&M has focused on the consequences of introducing a variety of frictions into their frictionless world to determine which frictions are most likely to explain systematic differences in optimal capital structures across industries. One obvious friction derives from an asymmetry found in most national tax codes. Interest costs may be deducted from taxable income, but dividends cannot. Thus, other things equal, a firm can increase value to its shareholders by increasing its leverage. Of course, this is a private benefit, not a social benefit, and should not enter into a regulator's computation of the optimal equity-to-asset ratio, except that it is important to recognize the distortions this creates and the unintended consequences that may arise when treating banks differently from other firms.

Other frictions derive from a variety of asymmetric information and agency costs. One set of frictions can be categorized as the costs of financial distress. If bankruptcy is costly—and recent evidence from the ongoing bankruptcy proceedings for Lehman Brothers suggests that it is—then any entity conducting transactions with the firm will try to avoid incurring such costs. Since a firm's probability of default rises as its leverage increases, beyond some point the probability of default will become sufficiently high that a firm's costs will start to increase. This is not only because a firm's probability of bankruptcy has risen to worrisome levels, but also because the firm may be tempted to exploit asymmetric information by engaging in asset substitution and taking riskier bets. These costs of financial distress include not only the cost of borrowing (and often the lack of availability of borrowing) but also the costs of various other inputs. Suppliers are likely to demand cash on delivery—or even cash in advance (an increasingly important concern as outsourcing has expanded)—and a firm must also worry about employee costs. Some of the most talented employees will leave for more secure positions, and they must be replaced by new employees who are likely to be less efficient for a considerable period of time. Moreover, it may be necessary to offer "golden handcuffs" to key personnel deemed vital to the functioning of the firm.

These costs of financial distress lead a firm to prefer a more moderate degree of leverage than if only the tax advantages of debt were

taken into account. Because these costs of financial distress are likely to vary across industries, it should not be surprising to observe different industries clustering around different equity-to-asset ratios. Of course, this analysis can be made much more sophisticated, but the important point is that these arguments apply to all firms. So far, none of these frictions pertains uniquely to banks.

In general, the equity-to-asset ratio of non-financial industries is not a matter of public concern. In most such industries, we assume that creditors and shareholders internalize most of the costs of bankruptcy and so market forces will lead firms to adopt optimum capital ratios that take into account the particular frictions they face.

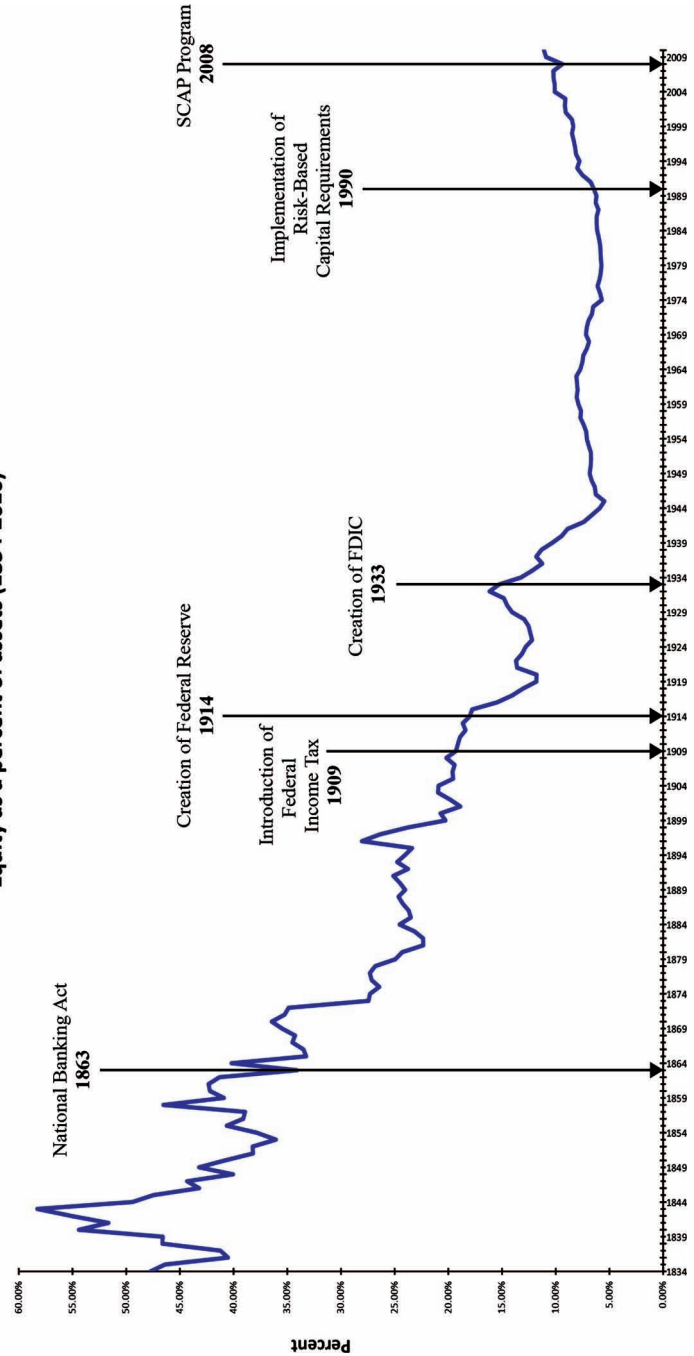
This argument does not apply to the banking industry, however, because virtually every country has erected a safety net to protect the financial system and, more broadly, the economy, from damaging spillovers from a banking crisis—costs that are not internalized by the creditors and shareholders of banks when they take decisions regarding the bank's optimal capital ratio. Although the details of the safety net differ from country to country, they generally involve implicit guarantees for the asset side of a bank's balance sheet (primarily through lender-of-last-resort facilities) and explicit, as well as implicit, guarantees for the liability side of the balance sheet.

Deposit insurance constitutes the principal explicit guarantee (which, as we have seen, may be expanded greatly in a crisis). Implicit guarantees can arise from the practice of relying on "purchase and assumption" transactions to resolve a failing bank or simply a record of protecting uninsured creditors in the event of failure. The safety net also includes financial supervision, which is intended to assure the public that banks are following the rules designed to ensure their safety and soundness. If the public has confidence in the safety net, the expected costs of financial distress fall so that banks will prefer substantially greater amounts of leverage than they would choose if the safety net were not available. This, indeed, is the principal rationale for imposing capital requirements on banks.

By looking back to the early nineteenth century, we can make some inferences about the degree of leverage banks would prefer in the absence of various elements of the safety net.[1] Figure 1 shows

[1]This extends the discussion found in Berger, Herring, and Szegö (1995).

Figure 1. The Evolution of Leverage in U.S. Banks (1834–2010)



the evolution of equity-to-asset ratios for U.S. banks from 1834 to the present.[2] The pattern is striking. Before 1863, no federal banking regulation existed. Banks did not enjoy access to any of the elements of a safety net and they chose very high equity-to-asset ratios because the costs of financial distress were very high. These could not be offset against the tax benefits of debt because corporate income taxes did not exist. These ratios, which were as high as 55 percent, declined markedly with the enactment of the National Banking Act of 1863, which created the Office of the Comptroller of the Currency (OCC). The OCC chartered and supervised national banks. To the extent that depositors and creditors had confidence in delegating monitoring to the OCC, the introduction of this element of the safety net may have reduced their concerns about asymmetric information. Equity-to-asset ratios fell quite dramatically to a range between 30 percent and 35 percent.

The remaining decline in equity-to-asset ratios over the nineteenth century can be largely attributed to technological and institutional improvements that reduced the vulnerability of many banks to a run. The introduction of the telegraph, national railway connections, regional exchanges, and bank clearinghouses fostered the development of regional and embryonic national financial markets, increasing the access of banks to sources of liquidity beyond their own markets.

Just after the turn of the century, two policy measures may have induced banks to assume higher leverage, but they happened so quickly in succession that it is difficult to disentangle their separate contributions. The corporate income tax was introduced in 1909, but initial tax rates were so low that they are unlikely to have led to significant distortions. Just five years later, the Federal Reserve System was created with the power to engage in discount window lending. Shortly after World War I began, corporate tax rates were raised to levels that may well have biased the capital structure choice in favor of greater leverage. Probably for both reasons, leverage began to rise until the start of the Great Depression, when heightened creditor and depositor concerns about asymmetric information led banks

[2]Since accounting conventions have shifted over time, these ratios must be regarded as a rough indication of trends.

to deleverage. This was only a brief interruption of a century-long trend of increasing leverage.

The introduction of explicit deposit insurance, with the creation of the FDIC in 1933, led to an increase in leverage—with equity-to-asset ratios falling to the 5 percent to 10 percent range, where they remained until the introduction of the Basel I requirements in 1990 and the Federal Deposit Insurance Improvement Act (FDICIA) leverage ratio in 1991. Among other things, FDICIA introduced a structured early-intervention system tied to increases in leverage below the required equity-to-asset ratio. FDICIA was probably more important in leading U.S. banks to decrease their leverage than the Basel Accord because the leverage standard frequently required more equity capital than the Basel risk-weighted capital requirements. From that point, the evolution of leverage among U.S. banks differed from that in most other countries. Banks subject only to the Basel risk-weighted ratios tended to increase their leverage as they found ways to arbitrage the risk weight, while banks in the United States were constrained by the leverage requirement.

The final reduction in leverage for U.S. banks was a direct consequence of measures taken to restore confidence in the wake of the crisis. In 2009, the U.S. regulatory authorities introduced the Supervisory Capital Assessment Program (SCAP) that required banks to project their capital positions under stress conditions. Nineteen of the largest institutions were required to conduct simulations to determine whether their capital buffers were sufficient to withstand the specified degree of stress. Ten of the nineteen were deemed to have failed the test even though they met the legally mandated capital requirement. That this approach strengthened rather than weakened confidence can be explained by the fact that banks that failed were required to accept a capital infusion from the government until they could reduce their assets or raise sufficient capital on their own.

It is evident that the Basel II approach to regulating bank capital failed comprehensively. The numerator in the regulatory ratio did not reflect an institution's ability to absorb loss without going through resolution or bankruptcy, and the denominator did not capture the most important risks to which banks were exposed. Moreover, the minimum was set much too low, which is not surprising since no rationale for the original 4 percent tier 1 ratio and the 8 percent combined tier 1 and tier 2 ratio has ever been offered by the

Basel Committee.[3] This left bank supervisors all over the world in the awkward situation of trying to explain why it was necessary to provide public funds to a bank that met and even exceeded the minimum regulatory capital requirement. Indeed, banks that required intervention often reported higher regulatory capital ratios in the preceding period than other banks that did not require assistance.

Even though systemic banking crises can be enormously expensive—for example, by June 2009, the United States and Europe had committed roughly 25 percent of world GDP to guaranteeing their banking systems (Alessandri and Haldane 2009)—many legislators, regulators (and, of course, bankers) appear to believe that banks add sufficient value in terms of payment services, intermediation, and maturity transformation to warrant maintenance of a high degree of leverage regardless of the potential costs. This presumption lacks rigorous empirical support. In fact, academics and researchers in some regulatory institutions are undertaking increasingly sophisticated studies to attempt to quantify the trade-offs that may be involved in requiring banks to fund themselves with substantially more equity capital.

In the meanwhile, regulators have responded to the crisis by proposing that internationally active banks be subject to equity capital requirements as much as four to five times current (very low)[4] international minimum risk-adjusted ratios (Basel Committee on Banking Supervision 2011). Some regulators (Tarullo 2011), several academics, and even the *Wall Street Journal* (2011) have argued for still higher equity capital requirements.

[3]The most plausible rationale is the cynical observation that the 4 percent/8 percent standard was set so as not to inconvenience any major bank.

[4]Tier 1 capital was originally intended to be mainly equity, retained earnings, and instruments such as non-cumulative, perpetual preferred stock that could serve as a source of strength to maintain the bank as a going concern. However, over time, pressures from banks and creative investment bankers led to the acceptance of a number of hybrid instruments that appeared to be sufficiently like equity to placate the regulators and sufficiently like debt to convince the tax authorities that payments on such instruments could be counted as interest payments and deducted in computing taxable income. Thus, over time, what was originally a 4 percent equity requirement fell to a 2 percent equity requirement. Most of these hybrid instruments proved utterly useless to sustain the bank as a going concern because they could bear loss only in a resolution or bankruptcy process. Regulators intend to ban these instruments in the new definition of tier 1 capital that they hope to implement by 2018.

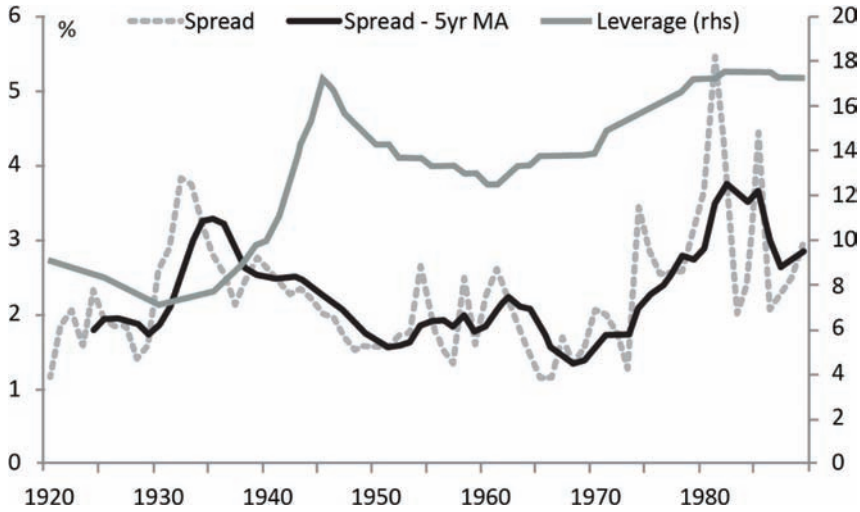
Banks have countered that higher equity capital requirements will require that they charge correspondingly higher spreads to customers, which would cause a decline in economic growth and shift a considerable amount of traditional bank business to the largely unregulated shadow banking sector (Institute of International Finance 2010). Although the relationship between spreads and the rate of return on equity seems clear in the mechanical formula sometimes used to relate spreads to the equity-to-asset ratio,[5] this result is based on the assumption that *required* returns on equity and funding costs will not adjust to changes in a bank's leverage.

Of course, the logic of the M&M argument suggests that the market would be willing to pay more for a stream of less-leveraged earnings (because it is less risky and therefore the required return on equity will decline) and creditors will charge lower credit-risk premia (because the bank is less likely to default). The distortions created by the safety net, however, imply that banks will not experience the full benefit of a reduction in leverage because many creditors are already relying on external guarantees provided by government rather than the bank's own creditworthiness. But the implicit public subsidy is reduced. In addition, Miles, Yang, and Marcheggiano (2011) present evidence from 1880 to this decade showing that spreads have borne no clear relationship to bank leverage in the United States. (See figure 2.) Moreover, they present additional evidence from the United Kingdom showing that leverage has not had a clear impact on the growth of real GDP.

We face a genuine conundrum, however, in determining the optimal equity-to-asset ratio for banks. We can't rely on market data because they are hopelessly distorted by the numerous features of the safety net (net of regulatory compliance costs). The calculation is further complicated by the fact that deposit liabilities, which provide a store of value and transactions services, are a key part of the

[5]This relationship can be derived from the plausible assumption that banks must set spreads at least large enough to yield the required return on equity that shareholders demand to avoid destroying shareholder value. This proposition can be reduced to the simple formula that spreads must be set at least as high as $S = E/A\ (r - i)$, where S is the spread above the cost of funds, E is equity, A is total assets, r is the required return on equity, and i is the bank's cost of funds. If one assumes that $(r - i)$ will not change, higher equity-to-asset ratios require correspondingly higher spreads.

Figure 2. Leverage Has Not Had a Clear Impact on Spreads



Source: Homer and Sylla (1991)
Note: This figure is as shown in Miles, Yang, and Marcheggiano (2011, p. 8).

value that banks add to society. Since some liabilities are really a product supplied by the bank rather than simply a means of funding the bank, we know that a 100 percent equity-to-asset ratio cannot be the correct answer. But given the enormous costs incurred by governments on both sides of the Atlantic, it is clear that equity-to-asset ratios have been set much too low to provide a sufficient buffer against the risks banks have taken. Thus, as most regulators recognize, there is a strong case for requiring much higher equity-to-asset ratios.

The leverage ratio contained in the Basel III proposal, however, is quite timid—a mere 3 percent—which would have been inadequate to enable several major banks to continue as going concerns without government assistance. It seems clear that the equity-to-asset ratio should be raised substantially above the level contemplated in the current proposal. But how much higher? We lack a clear analytic answer to this important question, but one ballpark estimate might be equal to the amount of equity and long-term debt banks currently

issue[6]—unless there is a case for supplementing an equity-to-asset ratio with a requirement for an additional contingent convertible debt ratio to provide a means of efficiently recapitalizing a bank if a shock reduces its equity-to-asset ratio below its required level.

Calomiris and Herring (2011)[7] have argued that there is a strong case to be made for requiring much higher equity-to-asset ratios and for restating these regulatory requirements in terms of proxies for market values rather than relying exclusively on accounting measures which can be easily manipulated and will always lag the actual deterioration in a bank's net worth (Herring, forthcoming). Moreover, we argue that this greatly strengthened equity-to-asset ratio should be supplemented with a required ratio of properly structured convertible contingent bonds (CoCos).

What can CoCos accomplish that cannot be accomplished by an equity-to-asset ratio alone? Some proposals for CoCos emphasize their role as a buffer against loss in the event a bank must be resolved. Others emphasize that CoCos can be a useful signaling device and a way to supplement supervisory discipline with market discipline. While we recognize these potential benefits, we think that CoCos can be designed to accomplish an even more important function. Our proposal is designed to provide strong incentives for managers to maintain high equity-to-asset ratios and strong risk-management controls. If managers fail to do so, shareholders will be substantially diluted and the managers will almost certainly be replaced by new management because both old and new shareholders are likely to be displeased with their performance. In addition, CoCos will provide a way for a bank that falters to reestablish its equity-to-asset ratio without having to go to the market at an unfavorable time (when the "lemons problem" is likely to be most severe) and to enable the bank to maintain its required equity-to-asset ratio without abruptly reducing its assets, which can destabilize markets and reduce the availability of credit when it may be most needed. In short, we believe that a requirement for appropriately structured CoCos (alongside a substantially higher required equity-to-asset

[6]This is because long-term debt is generally issued simply to fund the bank rather than to fulfill customer demands.

[7]This builds on the pioneering work by Flannery (2005) that introduced the notion of contingent convertible bonds in the banking literature.

ratio) will be a more effective prudential tool than a higher equity requirement that is equal to the sum of our increased equity-to-asset ratio and our CoCo-to-asset requirement.

What differentiates our proposal from several other variants is the amount of CoCos that we would require that banks issue, the trigger for conversion of CoCos into equity, the quantity of CoCos converted when the trigger is set off, and the price at which debt is converted into equity. These features are designed to make the conversion of CoCos so costly to shareholders and managers that they will take every possible precaution to avoid triggering the conversion. This is also important in expanding the market for CoCos. If the chance that CoCos will be converted is sufficiently low, they will be priced like subordinated debt and will appeal to a much broader range of institutional investors.[8]

We advocate setting regulatory capital requirements with regard to the quasi market value of assets (QMVA), which we define as the market value of equity plus the face value of debt. This avoids the difficult problem of making a timely evaluation of a bank's assets (which are often illiquid and opaque) by taking advantage of the information contained in equity prices.[9] Moreover, we believe that capital requirements should be set under the assumption that the bank will continue as a going concern and so liabilities should be valued at face value, which is easily observed.[10]

[8]Higher equity-to-asset ratios will, of course, reduce the price of all debt in principle, but the point is that a sufficiently low probability of conversion should make the instrument appealing to many of the same institutions that hold long-term claims on banks.

[9]In this era of highly volatile share prices, some observers doubt that there is significant information content in market values, and we would certainly not want to rely on a bank's share price on any given day, but we show that a reasonable equity requirement based on a 90-day moving average of equity prices (to reduce the impact of day-to-day volatility) would have done an excellent job of distinguishing banks that would require significant government assistance or resolution from those that did not. Moreover, regulators would have been able to see the deterioration several weeks, and in some cases months, before intervention was necessary, thus reducing pressure to design hasty rescue packages over sleepless weekends (see Calomiris and Herring 2011).

[10]Ideally, regulators might want to adjust liabilities for changes in interest rate risk, but *not* for declines in the value of a bank's liabilities due to market perceptions of increased credit risk.

We believe the amount of CoCos issued should be a significant proportion of equity so that management and shareholders will need to focus on the possibility of a significant dilution of the value of their shares if they fail to maintain adequate capital ratios or manage risks carefully. For the same reason, we would argue that the full amount of CoCos should be converted and the conversion price should be very favorable to holders of CoCos—perhaps as high as 1.05 times the face value of their claims.

The trigger for a conversion of CoCos should be a *sustained* decline in the moving average market cap of the bank to the QMVA. We term this ratio the "quasi market value of equity ratio" (QMVER). The trigger should be set at a sufficiently high level so that the market value of equity is not contaminated by either the option value of equity or the expectation of a bailout and so that there is sufficient time for a bank to take corrective action.

In effect we've tried to design a security that would reverse the perverse incentives of a debt overhang in which shareholders are reluctant to issue new equity even though their bank is undercapitalized because most of the increase in value would go to creditors. Under our plan, shareholders would have heightened incentives to issue new equity, take corrective action, or sell the firm before they hit the trigger point because they face the prospect of substantial dilution and, in the case of managers, job loss, if they do not.

Of course, these incentives will not prevent every bank from triggering the conversion of the CoCos. But even when a bank hits the trigger point, society will be better protected from loss than if the CoCos had not been in place. The bank will automatically be recapitalized without incurring the very heavy transaction costs of issuing new equity under pressure when concerns about asymmetric information are most intense. This additional equity may give the (probably new) management team time to restructure the bank or merge the bank with another institution.

Inevitably, some banks will fail to achieve a turnaround, and so it will still be necessary to have a well-designed plan of structured intervention (redefined in terms of transparent market-value triggers such as the QMVER) and a workable rapid-resolution plan. But even in this case, the regulatory authorities will have gained a significant amount of time to prepare and should be able to avoid making the costly blunders that often accompanied the hastily arranged bailouts in the crisis of 2008.

CoCos have an additional value when we are unsure about the optimal amount of equity capital that a bank should issue. Banks, like other firms, are subject to numerous frictions that would lead to the choice of an optimal equity-to-asset ratio—perhaps one similar to that chosen by finance companies that do not benefit from access to the safety net. But banks are so thoroughly entangled in the safety net that it is very difficult to determine what ratio they would choose if no safety net were available and they were forced to internalize the costs of their mistakes. This is an interesting experiment that could be run, but no modern society has the political will to undertake it and so, inevitably, capital requirements will be somewhat arbitrary. Based on recent experience, we can be sure that banks should be required to issue more equity capital, but how much more remains unclear. If the costs of issuing equity capital were entirely negligible, it would be prudent to err on the side of caution. But if regulation becomes too costly—not just in terms of a required capital ratio that diverges from the optimum, but also in terms of the growing costs of compliance with a rapidly expanding set of complex regulations—systemically important activity may shift from banks to shadow banks. This is the unpleasant trade-off that supervisors have long faced: Is it better to keep crime on the streets where it can be monitored and controlled? Or should it be pushed into dark alleys? Although CoCos cannot solve this dilemma, they can induce banks to maintain higher equity buffers and stronger risk controls than an equity requirement alone and they permit shareholders to enjoy some of the benefits of the tax shield open to other corporations without increasing the risk of default.[11] Moreover, the issuance costs of CoCos in normal times should be less than the issuance costs of new equity in times of stress to stay above regulatory minimums, and so suitably designed CoCos may provide more flexibility to the financial system when it is most needed.

[11] Of course, it would be preferable to abolish this tax distortion completely, but as long as it exists, denying banks the opportunity to issue tax-deductible debt while permitting other firms to do so is likely to encourage the migration of a considerable amount of traditional bank activities to other, less-regulated firms. A decade ago, it might have been credible to assert that as long as the deposit function was protected, this was of no consequence. But in the recent crisis, governments felt obliged to bail out numerous firms that offered negligible, if any, deposits.

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