

Addressing “Too Big to Fail”: It Will Take More than New Capital Requirements

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Abstract: Despite repeated assurances of capital adequacy from many quarters right up to the failure of Lehman Brothers, many large, complex financial institutions posed a systemic threat to the economy in the last recession. Leverage within the financial sector itself took many forms, creating a dense layering of commitments across the balance sheets of financial firms. The size of financial sector balance sheets was not the only element leading to solvency risks. The complexity of the financial instruments held, along with the maturity of the liabilities issued in order to place more assets on the balance sheets of financial institutions, contributed greatly to the degree of financial fragility. Limiting the complexity of financial instruments, while increasing the tangible capital requirements and the liquidity buffers of financial institutions will reduce the need for monetary and fiscal authorities to socialize losses or take on a lender of last resort role in future financial crises. Incentives or more direct measures to break up large financial institutions may also be required, rather than declaring them “systemically important” and therefore favored by policy makers. Ultimately, all such measures need to be nested within a larger, more preventative policy context. Central banks will need to place financial stability on par with price stability as a policy objective. Fiscal authorities will need to recognize the private sector cannot be kept off a deficit spending trajectory, with ever mounting private debt/income ratios, unless full employment and apt trade policies are pursued.

Introduction

The last episode of financial instability required a rapid public recapitalization of a number of financial institutions that were deemed to be plagued by liquidity issues that were in turn posing solvency risks. While public policy has previously played a role in containing the threats posed by financial institutions judged “too big to fail”, the scale of the intervention required this time around is simply unprecedented. Questions regarding the appropriate degree of liquidity, capital, and leverage for large financial institutions have naturally arisen as policy makers search for ways to reduce the odds of another financial derailment of this severity. In the following brief, I discuss the question of how to deal with “systemically important” financial institutions.^a Enhanced capital requirements and higher liquidity buffers can play a role in reducing the severity of financial dislocations, but they are only part of the solution.

The Role of Financial Sector Size, Leverage, Complexity and Inter-connectedness in the Making of the Financial Crisis

Excessive household and nonfinancial business debt to income ratios, which climbed to record highs in the last expansion, undoubtedly played a role in delivering the deepest recession of the post WWII period. Firms used the collateral enhanced by strong equity markets to employ more leverage in mergers, acquisitions, and private equity deals, while households were busy deficit spending on the back of a housing bubble. However, it is not widely acknowledged that financial sector liabilities themselves surged to a peak of six times the value added of that sector in the last expansion. This implies a thick

^a This analysis is carried out from a perspective informed by Hyman Minsky’s financial instability approach.

and complex layering of liabilities within the financial sector itself, whereby debt was issued by one financial institution in order to finance the holding of debt issued by other financial entities.

For example, various structured finance instruments and techniques were introduced such as the use of SIVs (structured investment vehicles) and other conduits in order to create off balance sheet portfolios of CDOs (collateralized debt obligations), which in turn were packages of sliced, diced, and tiered mortgage debt. These SIVs in turn were financed by the issuance of ABCP (asset backed commercial paper) liabilities to money market mutual funds. This thick and broad layering of debt within the financial system itself allowed leveraged financial investment to expand rapidly. In essence, the velocity of money circulating within the financial system escalated as debt was issued by financial institution to position holdings of other debt instruments. This is one reason why the balance sheets of broker dealers, for example, grew at a multiple of the Fed's balance sheet - indicating the common emphasis on central banks creating excess liquidity may in fact be misplaced. In the face of this tremendous financial layering within the financial sector itself, the essence of the too big to fail problem then becomes a matter of more than just size.

The use of leverage is a critical component of financial firms scaling up their balance sheets and becoming more interdependent. Size does couple with the density of connections between balance sheets. The more financial obligations a firm has, and the larger the financial commitments, the more damage may follow the failure to meet those commitments, and the more likely will be the triggering of contagion effects across the financial system. But "too big to fail" may be something of a misnomer, as both the complexity of the balance sheet, and composition of the liabilities on the balance sheet, are also apt to play a role in determining whether a financial institution is systemically dangerous.

Complexity of the balance sheet does tend to naturally increase with its size, but it also increases with the opacity or complexity of the financial instruments and the positions held. This is most obvious in the case of assets held off balance sheet, which are at best sparsely described in the footnotes of financial statements. Similarly, instruments used to hedge exposures to assets held on the balance sheet may obscure the true net exposures of a financial institution. All of this leads to increased investor confusion and uncertainty when evaluating financial firms. Capital adequacy cannot be easily assessed when balance sheets become too complex and too opaque, and so it is not surprising that regulatory and monetary authorities insisted right up to the bitter end that the financial system was adequately capitalized. *This ultimately argues for a significant simplification of financial institutions and instruments.*

In addition, the composition of liabilities on the balance sheet matter. Not only is the division between debt and equity critical, but whether the liabilities are short or long term, whether the equity is tangible or intangible, and how the assets are valued (tiers 1-3 now exist with various admissible valuation techniques) will make a difference. In the case of financial institutions especially dependent upon wholesale deposits, for example, which compose some of the short term liabilities of commercial banks, a number of self-fulfilling runs were observed when holders of these brokered deposits began to question the solvency of various institutions dependent upon this form of financing.

Too Big to Fail and the Minsky Cycle

These additional dimensions beyond size that determine whether a firm is systemically dangerous mesh well with the model of endogenous financial instability presented by Hyman Minsky. Minsky noticed it

is difficult for market participants to identify appropriate leverage ratios in advance for two reasons. First, future income flows of households and firms are fundamentally uncertain in market economies, therefore their debt servicing capacity is unknowable in advance and cannot be described probabilistically. Second, perceptions of acceptable degrees of leverage rise over the course of a business cycle expansion as creditors and debtors extrapolate the experience of successful leveraging and balance sheet adventuring in the recent past well into the future. This behavioral response to fundamental uncertainty initially has a self-fulfilling prophecy aspect to it. As more units in the economy extend their purchasing capacity with debt financing, stronger than expected income flows arise from the debt enhanced spending, which in turn raises acceptable leverage ratios even further. Because of these two features, the perceived limits to leverage are not fixed, but vary procyclically, thereby amplifying business cycle dynamics.

However, as a business cycle expansion matures, more and more units in the economy migrate beyond a low risk or hedge financing position, where expected future cash flows are adequate to service principal and interest payments. More firms and households enter a speculative position, where new debt must be issued to cover principal payments. Eventually more units end up in a Ponzi financing position, where new debt must be issued to cover both prior interest expense and principal repayments. As the share of speculative and Ponzi units rises, economic activity becomes increasingly dependent on financial market conditions. Firms and households become more exposed to refinancing and rollover risks. If financial markets are not functioning well, or if investors are fleeing risk or facing too much uncertainty, the terms for refinancing or rolling over existing debt will become more onerous, and in the extreme, new financing may not be available. Consequently, more expensive or less available financing is likely to force asset sales by speculative and Ponzi units. This in turn undermines the collateral values and the net worth of other holders of these same or similar assets. Asset price cascades can result as speculative and Ponzi financing units are forced to shrink their balance sheets, and in the economy can enter the type of debt deflation spiral described by Irving Fisher in 1933 as the Great Depression was unfolding, taking his wealth and his general equilibrium theories with it.

The vulnerability introduced by the reliance on short term liabilities to scale up financial institution balance sheets was evident across the board in the recent financial crisis. Commercial banks were dependent on wholesale deposits to position their assets. Investment banks and broker dealers were dependent upon repo (repurchase) financing to position their assets. Hedge funds were relying on prime broker margin loans to position their assets. So called shadow banking institutions like SIVs were relying on the ABCP market to position their assets. Each of these short term borrowing instruments allowed financial firms to expand their balance sheets and effectively monetize the assets they held in order to accumulate more assets, while also making each of them increasingly vulnerable to changes in financial market conditions that might disrupt refinancing conditions.

Once those disruptions developed as questions about the size and nature of balance sheet exposures arose across each of these institutions (with the complexity of the positions they held adding to the fundamental uncertainty about their true value), the central bank stepped into its lender of last resort role. It is inherent in the dynamics of such financial system rescue efforts that the liquidity safety net gets extended to new instruments and new institutional forms as the central bank struggles to place a floor on asset prices in order to halt the cascade of asset values and net worth implosion. Since central

banks with sovereign currencies (meaning no fixed exchange rate into other currencies or commodities) face no constraint on liquidity creation, they can credibly act as a lender of last resort, or even a market maker of last resort, when private investors take flight. For example, in the recent crisis, deposit insurance was effectively extended to money market mutual funds in order to stem a run on these near cash instruments.

The Importance of Reducing Leverage and Increasing Margins of Safety

Limiting the use of leverage in financial portfolios, and increasing the margins of safety as Minsky, Ben Graham, and others described through liquidity buffers should be the central thrust of apt policy. As a practical matter, debt contracts require the delivery of more cash in the future by the borrower than is provided in the present by the lender. Arguments have been made through history that credit provision therefore should be restricted to the financing of productive, tangible assets that have the prospect of enhancing labor productivity or increasing the value added of production processes, thereby raising the odds of the borrower delivering higher future cash flows to the lender. In the case of using leverage to purchase financial rather than tangible assets, the borrower is either arbitraging yields across instruments, or relying upon asset price appreciation to service the debt. When considering questions of financial system design, it is relatively straightforward to see why credit for enhancing productive capacity should be favored over credit issued for leveraging financial portfolios or for extending consumer purchasing power, neither of which tend to increase the future earning power of the original borrower.

In this context, reducing leverage and raising capital requirements on financial institutions and financial instruments offers an intelligent way of reducing financial fragility without increasing the subsidization and socialization of losses exhibited in either ad hoc lender of last resort responses, or in more explicit public provision of what amount to put options for investors and financial institutions. In the case of derivatives, both the initial margin required to enter the position, along with the variation margin required while the position is marked to market during its holding period, could be raised in order to reduce the embedded leverage in these instruments. With regard to financial institutions, higher reserve requirements will enhance liquidity buffers, while higher equity capital requirements will reduce the degree of balance sheet leveraging.

Capital Ratios: Definitions, Evolution, and Limitations

The Basel Accord of 1988, developed under the auspices of the Basel Committee on Banking Supervision of the Bank for International Settlements (BIS) established a required minimum capital ratio for banks. In general, Bank hold loans and securities of varying degree of risk as assets, while their liabilities are composed of deposits, short term debt instruments like certificates of deposit (CDs), longer term debt instruments like subordinated debt, and equity capital. The BIS defined the minimum capital ratio as the value of bank equity capital divided by a risk weighted value of bank assets, with banks holding riskier assets required to hold more capital. Although the BIS has no enforcement authority, national regulatory bodies tend to implement their recommendations, with compliance extending beyond the original G-10 banking systems to over 100 countries.

Such capital ratios are designed to present a sufficient buffer in the event of future losses so that the risk of solvency is mitigated. Without sufficient equity, financial institutions facing possible losses that are large enough to introduce questions about the solvency can encounter runs on those bank liabilities that are not covered by government guarantees, and they can be forced into distress selling of assets. Both of these consequences can be a source of systemic risk.

Bank capital is further split into two tiers in the BIS requirements. Tier 1 capital is equal to the book value (the proceeds at the original issuance of the stock) of the bank's equity outstanding plus the value of retained earnings minus accumulated losses. Tier 2 capital is the sum of undisclosed reserves, re-valuation reserves, hybrid instruments, general provisions for loan losses and subordinated debt. Due to differences in national accounting standards, some discretion in the definition of bank capital is allowed within each of these categories. The required Tier 1 required capital ratio for bank holding companies is 4% of total risk weighted assets, while the required Tier 2 capital is 8%.

By including the value of retained earnings as part of the Tier 1 capital measure, the BIS inadvertently introduced an amplifying mechanism for credit cycles. During an economic expansion, as bank profitability improves, the return on bank assets tends to improve. Retained earnings are the returns on bank activity not distributed to shareholders or creditors. Unless dividend and interest payout ratios increase more than returns on bank assets increase during an expansion, the ratio of retained earnings to assets will tend to climb during expansions as well. Bank capacity to increase lending and grow its balance sheet varies procyclically – increasing during a boom, and shrinking during a bust. Rather than dampening or smoothing out business and credit cycles, the inclusion of retained earnings in the definition of Tier 1 capital can present an amplifying effect.

Subsequently, in June 2004, Basel II altered the risk weights applied to bank assets while maintaining the prior definitions of capital, thereby ignoring the issue of procyclicality. Under Basel II, banks, with the approval of regulators, are allowed to allocate capital based on their own risk models of the assets they hold. This self-regulating quality of Basel II allowed banks more room to manipulate their capital ratios. US regulators chose to apply Basel II standards to banks with at least \$250 billion of assets or foreign exposure of at least \$10 billion. For the remaining banks, US regulators issued in October 2005 a set of rules known as Basel IA, which added three risk categories for assets used in the risk weighted asset calculation, while expanding the use of external credit ratings to determine risk weighting, allowing loan to value based risk weighting of residential mortgages, and removing the 50% limit on the risk weight for selected derivative transactions..

Banks falling below BIS capital requirement face several options. They can sell more equity or subordinated debt to investors, sell banks assets, or merge with a stronger institution, none of which are particularly appealing options to equity holders. Since capital requirements reduce the leverage available to banks on their balance sheets, they also by their very nature tend to reduce the returns on equity capital. To avoid falling below minimal capital requirements while also trying to drive bank stock prices higher, banks have sought various ways around capital requirements. By repackaging and selling existing bank assets, the securitization of risky assets has been used by banks to reduce the capital they are required to hold. Placing bank assets in off balance sheet structures (SIVs, SPEs, conduits, etc.) has been a second response by banks to reduce their required capital, and thereby boost their returns to shareholders. A third unintended consequence of minimum capital ratios is that banks have shifted

more emphasis to higher risk trading activity. Each of these approaches that banks have employed to find ways of working around capital requirements have ended up playing a significant role in deepening the recent financial crisis.

Measures to reduce the loopholes available to banks to skirt the restraints of capital requirements are already underway. The Financial Accounting Standards Board (FASB), for example, has established a rule that forbids off balance sheet vehicles known as Qualifying Special Purpose entities in GAAP (generally acceptable accounting principle) accounting. This will force consolidation of many off balance sheet holdings back onto the stated balance sheets of banks. Both the Federal Reserve and the FDIC are considering some phasing in of the capital requirements that will be provoked as assets are moved back onto bank books. In addition, the Basel Committee has introduced capital requirements that are two to three times their current level on the trading book of banks, with these changes targeted to take effect year end 2010. Proposals to contain securitization have yet to be put forward, but these markets remain largely moribund, and it may prove difficult to revive investor confidence in some of the instruments that were created during the prior wave of innovation in securitization. Finally, more stringent measures of bank capital, like tangible common equity which eliminates intangible assets like goodwill that would be worthless in the event of a liquidation, and are often built up over time as the consequence of overpaying for acquisitions, have been employed by authorities like the US Treasury in recent stress tests.

With regard to the issue of the amplifying or procyclical aspects of capital ratios, sensible mechanisms have been proposed to introduce capital charges, restrict distributions to shareholders, or otherwise vary minimal capital ratios in a fashion that would prove cycle dampening. Nonetheless, implementing this otherwise desirable feature may prove difficult for several reasons. Ratcheting up capital requirements during a boom, for example, will require an agreed upon metric of the state of the credit cycle. The trigger conditions for such ratcheting, whether up or down, will need to be handled by a decision rule or by a discretionary authority. The use of dynamic provisioning measures by Spanish banks may be worth exploring in this regard, although clearly this mechanism failed to prevent a massive housing bubble from forming. In the case of a reliance on discretion rather than rules, since limitations on the ability to leverage financial portfolios or financial institutions has a direct impact on the potential profitability of an investment, a political economy problem will arise as financiers and investor groups contest or capture the regulatory body making such decisions.

Required capital ratios, then, cannot be treated as the silver bullet of bank regulation, even though they have a role in reducing financial fragility. Higher capital ratios can provide the buffer that reduces solvency risk, but in the absence of foreknowledge of the size of future bank losses, it is difficult to identify a priori the appropriate capital ratio – except to say, on the basis of the recent experience, they were simply not high enough. Banks, however, as profit seeking institutions, have sought and found a variety of methods and instruments for undermining capital ratios. Regulators must be prepared to recognize and evolve accordingly. Stricter definitions of capital may also be required, in no small part to remove the procyclical or amplifying effect ratios can have on bank balance sheet growth. Internally based risk rating models, as well as reliance on external rating agencies, proved in retrospect, given the incentive structures of the agents in place, to be faulty moves. All of this suggests the design of capital

requirements must be improved, and they are no replacement for the larger project of designing regulatory, monetary, and fiscal policies that promote a higher degree of financial stability.

Beyond Capital Requirements

Higher capital and liquidity requirements alone, however, are unlikely to prove sufficient. If financial firms are too big to fail, then perhaps they are too big to be allowed to exist at their current scale. Rather than ring fencing the largest 19 institutions and declaring them systemically important – a move that further exacerbates the moral hazard problems introduced by government bail outs - tax incentives, reserve and capital requirements scaled to the size of the firm, antitrust laws, or other mechanisms could be employed to shrink these institutions. Simplifying financial instruments so that the underlying debt contracts can be analyzed by institutional investors would increase the ability of investors to assess more accurate prices for them, while also reducing the fundamental uncertainty investors may face when trying to value assets held by financial institutions. It would also reduce the reliance on third party assessments from rating agencies who are paid by the issuers of these instruments, while also facilitating the ability to unwind or renegotiate these debt contracts in the case of systemic distress. Reducing the reliance of financial institutions on short term liabilities that by their very nature can introduce high refinancing or rollover risks, thereby forcing asset sales on institutions, seems an essential element in any attempt to reduce the potential for systematic risk.

Finally, all of these measures need to be nested within two other major policy thrusts. First, financial stability needs to be considered alongside price stability in central bank deliberations. Balance sheets become precarious during asset bubbles, so asset bubble prevention, not just ad hoc mop up operations after bubbles have burst, must be brought front and center into monetary policy decision making. The Federal Reserve, oddly enough, is still one of the few major central banks that does not even produce a financial stability review. Beyond that, a systemic risk regulator may be required to engage in macroprudential supervision.

Second, financial stability inherently requires reducing the amount of time the private sector spends on a deficit spending trajectory. Sustained private sector deficit spending leads to a build up of private debt on balance sheets. The private sector can only accomplish a net saving position (that is, saving out of income flows that is in excess of tangible investment) to reduce its indebtedness or build up its net financial assets if the public sector is running a deficit or if the trade balance is running a surplus. This is not high theory – it is simply the tyranny of double entry book keeping. Nothing less than a new growth model that is not dominated by prolonged private sector deficit spending on the back of serial asset bubbles is required. The rest of the world must be encouraged to reorient their economies toward domestic demand driven growth, and a fiscal led investment strategy must be pursued at home. The public debt of governments with sovereign currencies is by definition default free debt – the monopoly supplier of currency cannot run out of money to service debt. Indeed, as Minsky often remarked, one of the reasons for the absence of financial instability in the first two decades after WWII is because bank balance sheets were stuffed with Treasury securities by the end of the war. Rather than viewing public debt as a millstone around the necks of future taxpayers, perhaps it is time to recognize there are system stabilizing benefits when 1) fiscal deficit spending supports private net saving, and 2) private net saving allows private sector portfolios to accumulate default free Treasury securities.