

For release on delivery
5:15 a.m. EDT (11:15 a.m. local time)
September 28, 2015

Capital Regulation Across Financial Intermediaries

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at the

Banque de France Conference:
Financial Regulation--Stability versus Uniformity;
A Focus on Non-bank Actors

Paris, France

September 28, 2015

Strengthening the quantity and quality of capital held by banks has been a central element of post-financial crisis regulatory reform. Yet, as the topic of this conference reminds us, the crisis also exposed weaknesses in other financial intermediaries that carried systemic implications. In the United States, when Bear Stearns and Lehman Brothers failed, they were so-called freestanding investment banks, not subject even to the inadequate pre-crisis regulatory regime for bank holding companies. The stress at American International Group (AIG), an insurance company, and the vulnerability of money market funds to destabilizing runs contributed to a profound deepening of the crisis. Hence the theme for this session of the conference: In light of this recent history and, more generally, of the steady growth of nonbank financial intermediaries, to what degree should they be subject to the capital regulations developed by the Basel Committee on Banking Supervision and applied to bank holding companies in the United States and to all commercial and investment banks in Europe?

At first glance, the answer to this question might seem intuitively obvious. After all, the risk of loss associated with a particular corporate loan or mortgage-backed security or, indeed, any other asset does not vary just because its legal owner is an insurance company or mutual fund, rather than a bank. Yet we all know that regulatory capital requirements sometimes do vary with the nature of the firm. And I suspect that most people in this room believe there are good reasons why they *should* vary under at least some circumstances.

In my remarks this morning, I will explain how the identification of those circumstances should proceed--by looking not at the asset side of a financial intermediary's balance sheet, but at the liability side. The scope and nature of a firm's liabilities provide the justifications for capital requirements regulation. Differences in liabilities can, accordingly, sometimes warrant different capital requirements for portfolios of similar assets across firms. At the risk of packing

too much into these introductory points, let me also note that an emphasis on a firm's liabilities is related to, but not synonymous with, an emphasis on its activities. Thus, for example, simply deciding that an intermediary provides mostly commercial banking services or insurance products does not fully answer the question of what its capital requirements should be.

My purpose today is not to offer specific proposals, or even a comprehensive conceptual framework, but instead to propose an approach for thinking about the purposes of capital regulation across types of financial intermediaries that will suggest appropriate starting points for shaping--or reshaping--applicable capital regulation. This seems to me a particularly important effort at a time when the financial system is undergoing significant change.

Liability Structure and Capital Regulation

To begin, we should remind ourselves that capital regulation of private corporations is unusual. Generally, market actors with actual or contemplated claims on a nonfinancial corporation are left to their own devices in protecting their interests, though various features of contract, securities, and insolvency law are designed to help them make these judgments more efficiently. In many kinds of financial intermediaries, on the other hand, capital levels are regulated, usually because of market failures attributable to some combination of information problems, moral hazard, collective action problems, and systemic risk. Scrutiny of the liability side of the balance sheet reveals whether and how these various justifications are present for different financial intermediaries. Let me start with a couple of straightforward examples, well-established in regulatory practice.

The first example arises from the fact that, by the very nature of their business, many intermediaries have substantially more customer-facing liabilities¹ on their balance sheets than

¹ By "customer facing liabilities," I mean liabilities to households, retail investors, and businesses. In financial intermediaries, these liabilities are not only greater than in similarly sized balance sheets of non-financial firms.

nonfinancial firms. This characteristic often means that leverage is higher. It almost always means that a large portion of the liability side of the balance sheet is accounted for by such customers, who are not well-positioned to evaluate the soundness of these intermediaries' often-opaque balance sheets.

Consider the case of a very traditional life insurance company, which collects premiums from customers over a protracted period of time, while promising a payout to beneficiaries if the insured dies within the coverage period. The duration of the exposure, difficulties in evaluating the company's ability to pay, and the potentially high costs of changing coverage to another firm even if that evaluation can be done together provide a rationale for insurance company capital requirements. Here the motivation for capital regulation is likely oriented toward the capacity of the company to meet these long-term claims as they come due, presumably over a fairly extended span. Investors and counterparties from the financial sector might well be left to fend for themselves. Thus this rationale for capital regulation focuses only on assuring sufficient assets over time to satisfy the policyholders' claims should the company fail, with less attention to maintaining the company as a going concern.

A second example of how the liability side of an intermediary's balance sheet suggests the appropriate form of capital regulation is presented by the familiar problem of deposit runs on banks. Like a policyholder, a depositor has difficulty gauging the health of the financial intermediary. But unlike a life insurance policyholder, a depositor can withdraw all or most of her funds if she has any fear--even an ill-founded fear--that the bank may be in trouble. Indeed, depositors have a rational incentive to act quickly, since the first to withdraw will have the best chance of getting all their money back. Experience with bank runs, and with the more-damaging

They also disproportionately arise from financial transactions – such as accepting deposits or investments – rather than for performance of services or delivery of goods.

cases of bank panics (in which problems at one bank are imputed to others on the basis of incomplete and possibly incorrect information), led to government-provided deposit insurance. While countering runs and panics and protecting depositors from loss, government deposit insurance creates different justifications for capital regulation--protecting the government insurance fund, which is now guaranteeing a significant portion of the bank's liabilities, and countering moral hazard, which may arise because insured depositors need no longer care whether the bank is adequately capitalized.

The moral hazard issue leads us to a third example of how the liability side of the balance sheet of a financial intermediary reveals the need for capital regulation--the too-big-to-fail (TBTF) problem. As the size of an intermediary increases, its exposures to other market actors--including many other intermediaries--may become so extensive that its failure would threaten the financial system as a whole. Believing that the government will, for this reason, prevent such an intermediary from becoming insolvent, market actors may extend credit as if a guarantee similar to deposit insurance were in place. Thus the nature and extent of the firm's liabilities, taken as a whole, may warrant capital regulation to offset an implicit TBTF subsidy.

Even if the distinct problem of TBTF could be countered through other means, such as a credible bankruptcy or resolution option, the failure of a financial intermediary with systemically significant liabilities raises the prospect of imposing very large negative externalities on the financial system. This prospect creates an additional argument for capital requirements--or, more precisely, an argument for progressively higher capital requirements that would reduce the probability of the failure of the systemically important intermediary.

Note that this last discussion has moved us toward consideration of macroprudential reasons for capital requirements--specifically, for higher requirements aimed at reducing the

probability of insolvency below that which would be warranted if the sole regulatory aim were to protect customers, depositors, or even a government deposit insurance fund. As has been much discussed in recent years, pre-crisis financial regulatory regimes had substantially undervalued systemwide considerations. Indeed, in the first instance the crisis spread not only because of the direct effects engendered by the insolvency of individual firms, but also because of the dramatic contraction of funding available throughout markets for widely held assets such as mortgage-backed securities. The pre-crisis explosion of short-term wholesale funding, both inside and outside traditional banks, left the entire financial system vulnerable to the disappearance of this market funding as real estate prices declined sharply and uncertainty spread about the value of the assets being funded. Concerns about solvency accelerated the run of wholesale funding from Bear Stearns and Lehman Brothers, raising the prospect of classic fire sales of their assets, with consequent depressing effects on the balance sheets of all firms holding these assets.

Experience during the financial crisis vindicated the view of those who had argued that liquidity, as well as capital, in large intermediaries needed to be regulated.² It also buttressed the view that capital and liquidity regulation are closely related and need to be developed in tandem, if not as part of the same regulatory framework. Much academic research prompted by the crisis has focused on the interrelationship between funding and solvency problems.³

Here, then, is another way in which the characteristics of the liability side of an intermediary's balance sheet should determine the form and stringency of capital regulation.

² For a highly insightful survey of the implications of illiquidity issues for market performance and regulation, see Jean Tirole (2011), "Illiquidity and All Its Friends," *Journal of Economic Literature* vol. 49, no. 2, pp. 287-325.

³ See, e.g., Markus Brunnermeier and Lasse Heje Pedersen (2009), "Market Liquidity and Funding Liquidity," *Review of Financial Studies*, vol. 22, no. 6, pp. 2201-2238; Viral Acharya and S. Viswanathan (2011), "Leverage, Moral Hazard, and Liquidity," *Journal of Finance*, vol. 66, no. 1, pp. 99-138; Zhiguo He and Wei Xiong (2012), "Rollover Risk and Credit Risk," *Journal of Finance*, vol. 68, no. 2, pp. 391-429; Stephen Morris and Hun Song Shin (2008), "Financial Regulation in a System Context," *Brookings Papers on Economic Activity* (Fall), pp. 229-61.

Shorter duration and, if you will, increased “runnability” of its liabilities create greater threats to both its stability and that of the financial system as a whole. Where a firm is significantly dependent on this kind of funding, it may need more common equity to convince counterparties and investors of its solvency during periods in which assets are very volatile and to maintain its solvency should it need to sell assets at fire sale prices. This microprudential basis for higher capital requirements is complemented by the macroprudential rationale that intermediaries whose deleveraging could have a broad impact on market liquidity through fire sale or related effects should be required to hold still more capital.

Let me make three additional points on this rationale for higher capital standards. First, a run that cuts off funding to widely held assets is a greater risk to the system than a conventional bank run in the absence of deposit insurance. A bank’s whole loans would not usually be sold in great number even under stressed circumstances and, even to the degree they were, other banks’ portfolios of loans are generally not marked down because of the stressed bank’s sales. Second, the possible availability of central bank liquidity support does not obviate the need for higher capital for intermediaries reliant on short-term wholesale funding. The same factors that make market actors uncertain about the value of the intermediary’s assets in times of stress will be relevant to the central bank’s ability to assure itself that the recipient of temporary liquidity is in fact solvent. Third, because these risks to the firm and the financial system arise from of the composition of the liability side of the balance sheet, the concerns expressed here apply--though perhaps in somewhat different degrees--regardless of the particular form of intermediation in which the firm is engaged.

Tailoring Capital Regulation

With only modest simplification of the always complex world of financial regulation, one can say that while capital requirements traditionally have differed significantly for different types of financial intermediaries, they have been relatively uniform for all firms classified as a particular type of intermediary. As I mentioned at the outset, the variations in capital requirements might run contrary to the intuition that the risk of loss of a given portfolio of assets is the same no matter who owns them. Of course, the direct explanation for the variations lies in part in institutional history, with different regulatory bodies having been given authority over different types of financial intermediaries. Still, as we have seen, differences in the liability side of the balance sheet can in fact provide a good policy justification for having varying capital requirements among different types of financial intermediaries.

Yet, as I will suggest in a moment, even if conventional differences are at least broadly justifiable (which, of course, is not to say that certain differences in any particular jurisdiction have been well-formulated in all their specifics), the fact that so many intermediaries have moved well beyond their traditional practices, products, and scope may warrant some qualification of conventional practice. Conversely, the conventional regulatory principle of imposing more or less uniform capital requirements on a given form of intermediary might have seemed intuitively correct. But one lesson regulators around the world have drawn from the crisis is that macroprudential considerations can sometimes argue for varying capital requirements among the same kind of intermediaries.

Let me address, then, some implications of the liability-side perspective on capital requirements for different forms of financial intermediaries. Despite the focus of this session of the conference on nonbanks, I want to begin by noting how post-crisis changes in the Basel

regime reflected the characteristics of an intermediary's liabilities. Prior to the crisis, the Basel regime--though nominally applicable only to internationally active banks--in fact applied to most banks in many member jurisdictions, including the United States and the European Union (EU). There were no quantitative liquidity requirements, and capital requirements did not vary based on the liability side of the balance sheet. Indeed, the major departure from uniform application of capital rules was the opportunity afforded by Basel II for large banks to use their own internal models in determining their regulatory capital requirements, an opportunity that Basel II's proponents expected to result in slightly lower requirements than under a standardized approach.

In the wake of the crisis, Basel III strengthened capital quality and levels across the board. In addition, capital surcharges were imposed on about thirty banks of global systemic importance (G-SIBs), based on criteria that roughly reflect TBTF concerns--that is, the size and interconnectedness of the firms' balance sheets. Neither the generally applicable Basel III changes nor the G-SIB surcharges were specifically tied to the stability of a bank's debt structure. However, minimum quantitative liquidity requirements have been developed in the form of the shorter-horizon Liquidity Coverage Ratio (LCR) and the longer-horizon Net Stable Funding Ratio, which together are intended to place some limits on excessive reliance on runnable liabilities.⁴

Important as these changes have been, the risks to the financial system posed by large amounts of short-term wholesale funding argue for closer regulatory linkage between capital and

⁴ In the United States, we have also applied a somewhat less stringent version of the LCR to banks that are large but that do not cross the threshold of being internationally active. This tiered approach is consistent with the principle stated earlier that prudential requirements should vary based on the potential impact of a firm's failure on the financial system as a whole.

The liquidity rules clearly seem to have influenced the way banks manage their balance sheets. In the United States, bank holding companies subject to the LCR significantly increased their holdings of high-quality liquid assets from the beginning of 2013 until the beginning of this year, to the point that many internationally active banks reported their LCR ratios already above fully phased-in requirements, even though the transition rules set an 80 percent minimum ratio for January 1, 2015.

liquidity concerns. Conceptually, the cleanest approach might be to integrate capital and liquidity requirements in a single regulatory framework, which would establish minimum levels of capital and liquidity and then increase the capital requirement for intermediaries with more vulnerable funding structures. Higher capital levels would be especially warranted for intermediaries using large enough amounts of short-term debt that their response when funding liquidity is constrained--either selling assets or withholding funding from their own customers--could adversely affect the financial system as a whole.

Realistically, though, the goal of full integration of capital and liquidity regulation seems unattainable for the foreseeable future. For one thing, it is hard to imagine all the relevant banking, market, and insurance regulators converging on such a novel approach anytime soon. In addition, though, without a more complete understanding of the precise relationship between liquidity and capital needs, placing so much weight on one form of regulation would be ill-advised. For the present, then, the Basel regime will maintain separate capital and liquidity regulations, which may differ among types of financial intermediaries.⁵ But we can at least strive to establish each set of regulations with reference to the other and to attain at least a rough consistency across regulatory regimes applicable to various intermediaries.

In the United States, we have already taken one step in this direction. As you may know, in implementing the Basel G-SIB capital surcharge, we decided that surcharges somewhat higher than those finally agreed in Basel were appropriate. As we refashioned the Basel approach, we added a metric on short-term wholesale funding dependence to the formula for determining a

⁵ It is worth noting that the net capital rule for broker-dealers maintained by the U.S. Securities and Exchange Commission is a form of hybrid capital and liquidity regulation. However, it seems basically oriented to protecting customers, a bit like traditional regulation of life insurance companies, and was not developed with going concern or systemic implications in mind. It does not, for instance, place higher requirements on firms with heavy reliance on short-term wholesale funding, though it does penalize firms that hold large amounts of illiquid assets. In many respects the rule seems well-suited to smaller broker-dealers but, for reasons explained earlier, it does not seem optimal for the large broker-dealers in large bank holding companies.

firm's systemic significance, a factor that unfortunately had not been included in Basel. I hope that when it comes time for a review of the Basel methodology for identifying and grouping G-SIBs, funding practices and vulnerabilities will receive more attention. And there may be further steps that could increase that sensitivity. Exploring ideas along these lines seems to me far preferable to raising minimum liquidity requirements for all banks, even those with capital levels well above the regulatory minimum. For example, while stress testing has traditionally focused on risks to capital, some observers have suggested adding liquidity risks to the stress test.

Turning now to some implications for other intermediaries, I will begin with broker-dealers, which pose perhaps the clearest case of the capital/funding relationship. Broker-dealers tend to hold large amounts of assets that are of longer duration, but that also are relatively liquid in normal times (in contrast, say, to whole loans by a bank). However, as seen most graphically in the case of mortgage-backed securities during the crisis, many of these assets can rapidly become quite illiquid in periods of stress. Since broker-dealers generally fund substantial portions of these assets with short-term liabilities, such as repurchase agreements (repos) rather than insured deposits, there is the potential, again seen in the crisis, for runs reminiscent of the bank runs of the era before the advent of deposit insurance.

To a considerable extent, of course, the Basel framework covers these firms. In the EU, any broker-dealer is covered, whether as a stand-alone entity or as part of a universal bank. In the pre-crisis period in the United States, matters were less clear, since only broker-dealers affiliated with bank holding companies were covered by the full panoply of Basel requirements. There was partial coverage of the five largest freestanding broker-dealers that needed such oversight in order to operate within the EU. Because, during the crisis, those five firms either became bank holding companies or failed and had their continuing operations absorbed by bank

holding companies, all sizeable domestically owned broker-dealers are now covered by Basel requirements.

However, as I mentioned just a moment ago, the Basel framework itself has not gone as far as is desirable in making capital requirements at the largest institutions sensitive to macroprudential funding concerns, a circumstance underscored by the balance sheets typical of broker-dealers. Consideration of changes such as refinement of the formula for assigning surcharges to G-SIBs would be useful when Basel standards are revisited over time. In the interim, there are more near-term opportunities for supervisory measures that take account of the relationship between capital levels and funding vulnerabilities.

Perhaps the most interesting application of a liability-side focus on capital regulation is the case of insurance companies. Given the ongoing discussions of capital standards in the International Association of Insurance Supervisors, the issue is also a timely one. Several relevant points can be derived from attention to the liability side of insurance company balance sheets.

First, as shown in my earlier example of how liability structure affects capital needs, the largest segment of a traditional insurance company's liabilities is composed of contingent claims based on the occurrence of specified events, such as the death of an insured person or destruction of insured property. These claims cannot be accelerated at the discretion of the holders of the contracts so, unlike deposits in a bank, these liabilities cannot run in any meaningful sense. Unless customers decide to sever their relationship with the company, in which case the contingent liability will be reduced or eliminated, they will continue to provide funding to the firm. Life insurance, in particular, has an unusually predictable liability pattern, well-refined by actuaries over the years. Thus there is a relative absence of liquidity risk as compared with other

kinds of intermediaries. Property and casualty insurance is somewhat more volatile but that volatility is not correlated with the broader economy. So, while higher capital levels may be needed for microprudential purposes, the traditional property-casualty insurance model does not appear to raise significant funding, fire sale, or other macroprudential concerns.

These traditional insurance liabilities argue for lower capital requirements than might be required for a hypothetical bank holding a similar portfolio of assets. And, as noted earlier, in some respects they also argue for a gone-concern approach to capital regulation. However, a second observation is that the liability side of the balance sheets of many large insurance companies look quite different from this traditional picture. Many life insurers, for example, now offer wealth and retirement products with account values that can be withdrawn at the discretion of the policyholder, sometimes with little or no surrender penalty. Although these products are generally considered medium to long-term liabilities, the option to surrender or withdraw funds creates the potential for increased claims that could strain the liquidity of the firm. Recent history suggests that the surrender rates of fixed annuities are directly related to the path of interest rate rises. In the middle part of the last decade, as interest rates rose in the United States, the surrender rate for these products increased by about 75 percent in just a few years, before dropping precipitously after the rapid decline in rates following the onset of the financial crisis.

Similarly, the move of some insurance firms into securities lending, repo, over-the-counter derivatives, and other capital market activities can work significant changes in the balance sheets of those firms, creating tighter connections to the rest of the financial system. As with other financial intermediaries, insurers then become subject to demands for posting additional collateral or closing out positions as unfavorable market conditions take hold. In

addition, if the books of the insurance company are large enough, it then becomes a potential vehicle for transmitting distress at the company to other parts of the financial system.

Thus the liability side of the balance sheets of firms that are all “insurance companies” can vary substantially, just as with firms that are called “banks” or “bank holding companies.” Yet capital regulation currently applicable to insurance companies seems not to make some of the relevant distinctions. Traditional capital regulation, with an implicit aim of protecting only conventional policyholders over time, potentially through an orderly insolvency, does not reflect the balance sheet risks I have just described. Yet more recent measures, such as Solvency II, with its heavy emphasis on current market valuation, may not take account of the fact that liability and liquidity risks for genuinely traditional life insurance products are relatively limited compared to those of many other intermediaries. In some respects, Solvency II ignores the strength of conventional insurance funding--that assets can be held for the truly long-term, through multiple business cycles--even as it focuses directly on the fluctuations in asset values that are indeed relevant to many less conventional activities.

This brief review illustrates the challenges in fashioning capital requirements for large insurance companies with a mix of traditional, nontraditional, and noninsurance activities that are sometimes quite intertwined in particular business lines or subsidiaries. And, even where these activities are reasonably segregated from one another, some of the policy devices suggested for differential capital treatment may be misplaced. For example, deciding on higher capital requirements based solely on whether an activity is “nontraditional” for an insurance company can be inappropriate. A “nontraditional” activity for an insurance company could embrace everything from the massive derivatives business maintained by the pre-crisis AIG to very sedate businesses outside the financial sphere entirely. In confronting these and similar challenges, I

would suggest that a focus on the actual nature of liabilities associated with a firm's activities provides a good starting point for sound analysis.

Finally, let me mention asset managers briefly. As they have garnered increasing shares of financial system assets, a trend that accelerated following the financial crisis, the question has arisen whether they too should hold capital buffers. Of course in most cases the asset manager itself does not have much of a balance sheet at all. The funds themselves are often not leveraged, in which case nearly all the liabilities are shares of the fund held by investors, the price of which varies to reflect the value of the assets purchased by the manager of the fund.⁶

While some commentators have suggested that liquidity challenges and consequent fire sale type behavior might develop if the structure of the fund places a premium on exiting first, these kinds of risks would support an argument less for capital buffers than for some form of prudential market regulation, such as rules on liquidity or redemptions. I would note in this regard that last week the SEC issued a proposed rulemaking that would require open-ended funds to have liquidity risk management controls in place for shareholder redemptions, including during times of stress.⁷ Likewise, to the degree that certain idiosyncratic risks might exist with respect to the decisions and operations of certain asset managers, their liability structure again suggests that some form of prudential market regulation would be better suited to address these risks.

⁶ Through the use of certain kinds of derivatives, some funds acquire synthetic leverage. There are arguments for additional regulation in those cases, though again, capital requirements do not seem at first glance the optimal tool.

⁷ Under the proposed rules, mutual funds and exchange-traded funds would be required to implement liquidity risk management programs to address investor redemptions, including swing pricing during times of rapid redemption and calculation requirements to measure the amount of assets that could be liquidated without impacting market prices. Securities and Exchange Commission Press Release 2015-201, SEC Proposes Liquidity Management Rules for Mutual Funds and ETFs, September 22, <http://www.sec.gov/news/pressrelease/2015-201.html>. SEC Chairman Mary Jo White previously provided a roadmap to the development of a regulatory approach for the asset management industry: "[Enhancing Risk Monitoring and Regulatory Safeguards for the Asset Management Industry.](#)" speech delivered at the New York Times DealBook Opportunities for Tomorrow Conference, New York, December 11.

Conclusion

In conclusion, let me recapitulate one set of points and add another. To recapitulate-- focusing on the characteristics of the liability side of a financial intermediary's balance sheet suggests that there *are* reasons to vary capital regulation across different forms of financial intermediation, but that significant shifts in the nature and scope of an intermediary's liabilities may in turn provide reasons for varying applicable capital regulation among firms that are primarily identified as a particular type of intermediary. Conceptual, institutional, and practical impediments to developing a single framework for capital regulation are doubtlessly insuperable for the foreseeable future. But regulators with mandates covering different kinds of intermediaries, including the Federal Reserve, must keep both sides of this perspective in mind. And, hopefully, regulators with a more focused responsibility will be sensitive to the ways in which their regulated entities have departed from their original liability structure.

The additional point follows from the first. When concerns are raised about regulatory arbitrage or a level playing field, they are usually in the context of a similar asset being held, or a business activity conducted, by financial firms with different regulatory structures. My discussion today would suggest that attention must be paid to the liability structure of the different firms before deciding whether the asymmetric regulatory treatment is prudent or an invitation to the propagation of new financial risks.

These two points underscore the fact that the question for regulators is not really whether capital rules developed for banks should be extended to nonbank actors. The Basel standards have already evolved to take account of different forms of intermediation in the financial firms subject to those rules. The Basel framework might itself be enhanced by further differentiation

of capital and liquidity requirements based on the liability structures of firms. Similarly, capital rules for intermediaries not subject to Basel rules should be shaped by similar considerations.