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Basel III G: Shadow Banking and Project Finance

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Abstract

The Net Stable Funding Ratio (NSFR), a liquidity standard introduced by Basel III, seeks to promote a better match between the liquidity of a bank's assets and the manner in which the bank funds those assets. The NSFR requires banks to maintain a minimum amount of funding deemed "stable" by the Basel framework based on the liquidity of the banks' assets and activities over a one-year timeframe. One of the areas seen as most affected by this development may be bank participation in project finance for infrastructure development. Since the global demand for infrastructure development remains robust, the shadow banking system may emerge as a significant source of project finance. This case considers whether the requirement that banks better match their assets and sources of funding is affecting bank business models, what it means for the availability of credit, and whether there are risks associated with the growing role of shadow banking in project finance.

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[1] This module is one of seven produced by the Yale Program on Financial Stability (YPFS) examining issues related to Basel III. The other modules in this series are:

- *Basel III A: Regulatory History*
- *Basel III B: Basel III Overview*
- *Basel III C: Internal Risk Models*
- *Basel III D: The Swiss Finish to Basel III*
- *Basel III E: Synthetic Financing by Prime Brokers*
- *Basel III F: Callable Commercial Paper*

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1. Introduction

Banks approached by corporate customers seeking long-term loans that will be difficult to sell or use as collateral face a crucial dilemma. On the one hand, a bank could fund such loans using short-term sources of financing that are lower cost but that may dry up in times of economic uncertainty, potentially leaving the bank with a severe liquidity problem. Alternatively, the bank could secure longer-term sources of financing at a higher cost to fund such loans, eroding the bank's profitability but affording it greater protection from a liquidity standpoint.

Prior to the financial crisis of 2007-09, many banks opted for the former approach, with consequences that were ultimately disastrous. When short-term financing sources effectively shut down during the early stages of the crisis, even some adequately capitalized banks found themselves in dire straits because of liquidity concerns. Recognizing that the financial crisis was thus a product not only of inadequate capital but also of inadequate liquidity, the Basel Committee on Banking Supervision (BCBS) for the first time added minimum liquidity standards to the Basel framework as part of Basel III.

The Net Stable Funding Ratio (NSFR), one of the two minimum liquidity standards introduced by Basel III, seeks to promote a better match between the liquidity of a bank's assets and the manner in which the bank funds those assets. The NSFR requires banks to maintain a minimum amount of funding deemed "stable" by the Basel framework based on the liquidity characteristics of the banks' assets and activities over a one-year timeframe. The result is that banks engaging in long-term, illiquid lending must secure longer-term, higher-cost sources of funding.

Although not scheduled to be fully implemented until 2018, the NSFR's introduction may have already begun to influence banks' business practices. There has been some speculation that banks are pulling back from business lines characterized by large loans that have lengthy terms and are illiquid. One of the areas seen as most affected by this development thus far has been project finance. Funding long-term infrastructure, industrial projects, and public services such as power plants, telecommunications networks, and roads, project finance by its very nature typically involves loans that are large, long-term, and illiquid.

Yet, despite the fact that banks may be restricting their involvement in project finance, the global demand for infrastructure development remains robust. This may be contributing to the emergence of other sources of funding for infrastructure development. Participants in the shadow banking system—the pension funds, insurers, hedge funds, and other financial institutions that comprise a financial system apart from the system of regulated banks—in particular are becoming active in the project finance market. What this will mean for the stability of the global economy remains to be seen, but some industry observers have raised concerns about shadow banking's growing role in project finance.

The remainder of the case is organized as follows: Section 2 describes the Net Stable Funding Ratio (NSFR) introduced by the Basel III framework. Section 3 provides an overview of the project finance industry. Section 4 outlines how the NSFR may be resulting in less involvement in project finance by banks and how the shadow banking system has begun to play a growing role in project finance, possibly to fill such a void. Section 4 then concludes with some discussion of the implications of the growing role of shadow banking in project finance.

Questions

1. Is the requirement that banks better match their assets and sources of funding affecting bank business models, and, if so, what does it mean for the availability of credit?

2. Are there risks associated with the growing role of shadow banking in project finance?

2. Net Stable Funding Ratio

Perhaps the most significant addition to the Basel framework made by Basel III has been the introduction of minimum liquidity standards to complement the capital requirements that have been the cornerstone of Basel from the outset. The introduction of these new standards is a product of the Basel Committee on Banking Supervision's (BCBS) assessment of the nature of the 2007-09 financial crisis. The BCBS has consistently described the crisis as one not only of inadequate bank capital but also of inadequate bank liquidity, noting "[d]uring the early liquidity phase of the financial crisis starting in 2007, many banks—despite meeting the existing capital requirements—experienced difficulties because they did not prudently manage their liquidity" (Bank for International Settlements 2014, 1). To promote such prudent management, Basel III proposes two standards for liquidity that the BCBS views as "designed to achieve two separate but complementary objectives" (Ibid., 1).

First, Basel III introduced the Liquidity Coverage Ratio (LCR) to ensure that banks can survive a 30-day stress scenario by requiring them to maintain sufficient high-quality liquid assets to meet expected outflows during such a scenario. (For a complete discussion of the LCR and how its introduction has already begun to affect the commercial paper market, see the YPFS Case Study McNamara, et al. 2014F.)

The second liquidity standard introduced by Basel III is the Net Stable Funding Ratio (NSFR), which seeks "to reduce funding risk over a longer time horizon by requiring banks to fund their activities with sufficiently stable sources of funding" (Bank for International Settlements 2014, 2). Specifically, the NSFR is intended "[t]o promote more medium and long-term funding of the assets and activities of banking organizations" to prevent the reoccurrence of a balance sheet mismatch that created significant problems in 2007-09—the use of short-term funding to back long-term assets and exposures (Bank for International Settlements 2010, 25).

In order to achieve this, the NSFR evaluates a bank's available amount of stable funding (capital and liabilities expected to be reliable over a one-year timeframe) relative to its required amount of stable funding (based on the liquidity characteristics and residual maturities of the bank's assets and off-balance sheet exposures). The NSFR mandates that the ratio of available stable funding to required stable funding be at least 100% on an ongoing basis. Thus, the less liquid and longer term a bank's assets and exposures, the more stable funding it will need to have available to it.

The first step in calculating a bank's NSFR is to determine its amount of Available Stable Funding (ASF). This measure is "based on broad characteristics of the relative stability of an institution's funding sources, including the contractual maturity of its liabilities and the differences in the propensity of different types of funding providers to withdraw their funding" (Bank for International Settlements 2014, 3). The bank must assign the carrying value of all of its capital and liabilities to one of five different categories created by the BCBS

to reflect differing degrees of maturity and likelihood of withdrawal. Each of these five categories has a corresponding ASF factor that indicates the percentage of the capital and liabilities in that category that may be included in the calculation of ASF. For example, the first ASF category includes liabilities with residual maturities greater than one year. Given that such liabilities are deemed completely stable for purposes of evaluating the stability of funding sources over the one-year timeframe contemplated by the NSFR, this category has an ASF factor of 100%. The full amount of all capital and liabilities assigned to this category is therefore included in ASF. (See Figure 2.)

Figure 1: Basic NSFR Ratio

$$\frac{\text{Available amount of stable funding}}{\text{Required amount of stable funding}} > 100\%$$

Source: Bank for International Settlements 2010, 25.

Figure 2: Summary of Liability Categories and Associated ASF Factors

ASF factor	Components of ASF category
100%	• Total regulatory capital • Other capital instruments and liabilities with effective residual maturity of one year or more
95%	• Stable non-maturity (demand) deposits and term deposits with residual maturity of less than one year provided by retail and SME customers
90%	• Less stable non-maturity deposits and term deposits with residual maturity of less than one year provided by retail and SME customers
50%	• Funding with residual maturity of less than one year provided by non-financial corporate customers • Operational deposits • Funding with residual maturity of less than one year from sovereigns, public sector entities (PSEs), and multilateral and national development banks • Other funding with residual maturity of not less than six months and less than one year not included in the above categories, including funding provided by central banks and financial institutions
0%	• All other liabilities and equity not included in above categories, including liabilities without a stated maturity • Derivatives payable net of derivatives receivable if payables are greater than receivables

Source: Bank for International Settlements 2010, 26.

After ASF has been determined, the bank must then follow a similar process to determine the amount of required stable funding (RSF). The RSF measure is "based on the broad characteristics of the liquidity risk profile of an institution's assets and [off-balance sheet] exposures" (Bank for International Settlements 2014, 6). The bank must assign each of its assets to one of several categories created by the BCBS with corresponding RSF factors "intended to approximate the amount of a particular asset that would have to be funded, either because it will be rolled over, or because it could not be monetised through sale or used as collateral in a secured borrowing transaction over the course of one year without significant expense" (Ibid., 6). For example, the highly liquid assets included in the first three

RSF categories receive RSF factors ranging from 0% to 15% reflecting the fact that the bank could with relative ease sell or use the assets as collateral to raise funds within the one-year NSFR timeframe. Assets at the opposite end of the spectrum, those that banks are completely unable to sell or use as collateral during the one-year timeframe, receive an RSF factor of 100%. The carrying value of the assets assigned to each category is then multiplied by the RSF factor and summed to determine the bank's RSF. The complete set of RSF categories and factors shown in Figure 3.

The categorization of a bank's assets thus becomes extremely important under the NSFR, with banks holding illiquid, long-term assets required to maintain higher levels of stable, long-term funding. Given that such stable, long-term funding is typically costlier to banks than is short-term funding, the NSFR creates an incentive for banks to avoid such illiquid, long-term assets.

Figure 3: Summary of Asset Categories and Associated ASF Factors

RSF factor	Components of RSF category
0%	• Coins and banknotes • All central bank reserves • Unencumbered loans to banks subject to prudential supervision with residual maturities of less than six months
5%	• Unencumbered Level 1 assets, excluding coins, banknotes and central bank reserves
15%	• Unencumbered Level 2A assets
50%	• Unencumbered Level 2B assets • HQLA encumbered for a period of six months or more and less than one year • Loans to banks subject to prudential supervision with residual maturities six months or more and less than one year • Deposits held at other financial institutions for operational purposes • All other assets not included in the above categories with residual maturity of less than one year, including loans to non-bank financial institutions, loans to non-financial corporate clients, loans to retail and small business customers, and loans to sovereigns, central banks and PSEs
65%	• Unencumbered residential mortgages with a residual maturity of one year or more and with a risk weight of less than or equal to 35% • Other unencumbered loans not included in the above categories, excluding loans to financial institutions, with a residual maturity of one year or more and with a risk weight of less than or equal to 35% under the Standardised Approach
85%	• Other unencumbered performing loans with risk weights greater than 35% under the Standardised Approach and residual maturities of one year or more, excluding loans to financial institutions • Unencumbered securities that are not in default and do not qualify as HQLA including exchange-traded equities • Physical traded commodities, including gold
100%	• All assets that are encumbered for a period of one year or more • Derivatives receivable net of derivatives payable if receivables are greater than payables • All other assets not included in the above categories, including non-performing loans, loans to financial institutions with a residual maturity of one year or more, non-exchange-traded equities, fixed assets, pension assets, intangibles, deferred tax assets, retained interest, insurance assets, subsidiary interests, and defaulted securities

Source: Bank for International Settlements 2010, 9.

3. Project Finance Overview

As defined by the International Project Finance Association, project finance entails "[t]he financing of long-term infrastructure, industrial projects and public services based upon a non-recourse or limited-recourse financial structure where project debt and equity used to finance the project are paid back from the cashflow generated by the project." Given the scale of the activities often being financed, the sums of money involved in this type of investing are generally substantial. According to a 2014 piece in *Project Finance* magazine, the largest project finance transaction in North America in 2012 occurred when Cheniere Energy Partners, a Houston-based energy company, secured $3.6 billion in bank financing to fund the first phase of construction at its Sabine Pass liquefied natural gas (LNG) export project in Louisiana. This first phase involves the completion of two LNG "trains," purification and liquefaction plants that enable natural gas to be converted to its liquid form for shipping. Upon completion, Sabine Pass will enable Cheniere to export LNG from the United States around the globe. Already Cheniere has signed LNG delivery contracts with energy companies in India, France, and Korea. Initial deliveries are scheduled to begin in late 2015. A syndicate of leading global financial institutions including Société Générale, Credit Suisse, HSBC, Morgan Stanley, and J.P. Morgan provided the $3.6 billion in bank financing for Sabine Pass as part of the institutions' project finance business lines.

Figure 4: Photo of Sabine Pass

Source: Project Finance 2014.

While many worried about the health of the project finance market in the aftermath of the 2007-09 financial crisis, the immediate picture has been bright. Global project finance lending in 2010 totaled $167 billion, the second highest annual amount ever recorded (KPMG 2010, 4). The resiliency of the project finance market is driven by robust demand for infrastructure. The Organisation for Economic Co-operation and Development (OECD) has estimated the global demand for infrastructure at $40 trillion over the next 20 years (Ibid., 4). With many governments increasingly unable and/or unwilling to invest in infrastructure, the project finance market provides a necessary source of funding to meet infrastructure

needs. As a result, the project finance market has continued to grow. Project Finance International estimates that in 2012, nearly $200 billion in global project finance loans were made. (2013). Europe, the Middle East, and Africa was the most active region for project finance deals at approximately $90 billion, with Asia (~$60 billion) and the Americas (~$50 billion) trailing (Standard & Poor's Rating Services 2013, 2).

Yet if the project finance market as a whole has remained strong, there is some evidence that banks may be in the process of pulling back. Given the size and sophistication of the transactions involved, the market for project finance lending historically has been dominated by leading banks. The list of the specific banks that have been most active in project finance reflects the geographic distribution of the deals, with European and Asian banks generally at the top of the league tables in recent years.

Although the NSFR is not scheduled to become a fully binding minimum standard until January 1, 2018, banks may have begun to prepare for its implementation already by restructuring or shifting away from lines of business involving long-term, illiquid lending. Project finance, which, given the scale and sophistication of the activities being funded, can commonly involve loan terms of up to 40 years, is one such business line that might be affected by the impending implementation of the NSFR. Depending on the nature of the specific loan, project finance assets would typically be allocated to one of the last RSF categories with an RSF factor ranging from 65% to 100%. Given the size and duration of most project finance loans, this means that banks would be required by the NSFR to maintain a correspondingly large amount of ASF for a long period of time.

Figure 5: Top Project Finance Debt Providers 2013, First Quarter

Provider	**HQ Country**	**Value ($millions)**	**Market Share (%)**
State Bank of India	India	2,326	6.3
Mitsubishi UFJ	Japan	1,391	3.7
Sumitomo Mitsui	Japan	1,101	3.0
ICICI Bank	India	1,092	2.9
UniCredit	Italy	1,048	2.8
Mizuho Financial	Japan	899	2.4
Lloyds Banking	United Kingdom	866	2.3
Barclays	United Kingdom	854	2.3
RBS	United Kingdom	755	2.0
Crédit Agricole	France	687	1.8

Source: Project Finance magazine 2014.

There have been significant changes in the structuring of project finance transactions by banks observed in the wake of the introduction of Basel III. There appears to be a clear link between these changes and the added pressure that the NSFR will place on banks once fully implemented. For example, in an interview with *Bloomberg*, French nuclear power plant developer Areva SA asserted that increased borrowing costs charged by banks as a result of Basel III have more than doubled the cost of completing nuclear power plant projects (de Beaupuy 2013). To the extent that non-bank financial institutions are able to participate in the project finance market without having to charge as much for financing, banks may play a declining role in financing these types of projects.

In addition to evidence of increasing borrowing costs, it also appears that it has become common for banks to impose terms intended to increase the transferability and reduce the duration of project finance loans. One such development is the introduction of "mini-perm" facilities, loans that assume a repayment of the debt through refinancing after a shorter period of time (typically from five to seven years) (Shearman & Sterling 2014, 3). Indeed, the 2012 Sabine Pass transaction was a seven-year mini-perm deal. Here again, non-bank financial institutions not facing regulatory pressures to structure transactions in this fashion may enjoy an advantage over banks in the project finance market.

4. Shadow Banking's Growing Role in Project Finance

Evidence of a shift in banks' involvement in project finance is still preliminary and in need of ongoing evaluation. However, what does seem clear is that shadow banking is playing an increasingly important role in the sector. The question of whether this is a result of an attempt to fill a void left by banks or of some other factors remains to be answered.

Shadow banking, defined by Standard & Poor's Rating Services for purposes of its analysis of alternative financing in infrastructure as "the system of finance that exists outside regulated depositories, commercial banks, and publicly traded bonds," consists of participants including "pension funds, insurers, sovereign wealth funds, and export credit agencies, alongside finance companies, private investment funds, business development corporations, asset managers, hedge funds, and sponsored intermediaries such as money-market funds" (2013, 3). Given that such institutions are not subject to the NSFR established by Basel III, they do not face the same standards as do the banks that have historically dominated the project finance.

There has been a recent significant increase in the role of shadow banking in project finance. According to Standard & Poor's, up to $25 billion of project finance debt may have come from the shadow banking sector in 2013 (Ibid., 2). While potentially accounting for only about 12.5% of the total size of the project finance market, this is a source of project finance funding that has emerged from almost nothing in just the past several years.

The growing role of shadow banking in project finance can be seen in the recent proliferation of infrastructure debt funds and units established by insurers, hedge funds, and other participants in the shadow banking system (Ibid., 4). The increasing involvement of the shadow banking system in project finance is not occurring without generating concern in some quarters. The relative lack of transparency associated with shadow banking investments has led some industry observers to worry about the potential for the buildup of systemic risk in the infrastructure sector (Ibid., 2). The fact that most shadow banking participants lack the deep institutional knowledge of project finance possessed by many

banks involved in the sector is an added concern for some, although the fact that hedge funds and insurers entering the infrastructure debt market have often done so through external hiring of individuals with industry knowledge may help address this fear.

The fact that shadow banking's role in project finance is still new and relatively small makes it difficult to predict what the eventual implications. However, questions already exist about whether Basel III's requirements have introduced more risk into the sector. In seeking to require banks to fund long-term, illiquid loans with higher cost, longer-term sources of funding, will the Basel framework push banks out of the project finance market? If so, will shadow banking's involvement grow enough to meet the continuing demand for infrastructure investment? And what would such growth mean for economic stability?

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