



The Role of Credit Rating Agencies in Shaping Multilateral Finance Recent Developments and Policy Options

3 April 2018

Commissioned by the Inter-Governmental Group of 24

Chris Humphrey

Swiss Federal Institute of Technology, Center for Development and Cooperation (ETH NADEL)

Acknowledgements

The author would like to thank Marilou Uy and the team at G24 for their support and feedback; to all interviewees who took the time to discuss the topic; and to those at all three rating agencies, the World Bank, the Swiss Ministry for Economic Affairs and Finance Canada who provided feedback on earlier drafts. All errors and omissions are the responsibility of the author.

Executive Summary

Multilateral development banks (MDBs) are critical to support the provision of physical and social infrastructure in the developing world required to keep pace with global economic growth and put our planet on an environmentally and socially sustainable path. To be effective, MDBs require a strong capital foundation, and right now that foundation is uncertain. One key reason for this is a lack of clarity on how much MDBs can lend based on their shareholder capital.

Because MDBs raise most of their resources on international capital markets, they require ratings from the “Big Three” credit rating agencies of Standard and Poor’s (S&P), Fitch and Moody’s. In recognition of the benefits it confers, shareholders have mandated that all major MDBs maintain a AAA bond rating. Rating agencies have taken different (and frequently changing) approaches to evaluating MDBs, some aspects of which are highly conservative and opaque. As a result, MDBs are being pulled in different directions as they try to maintain AAA and face uncertainty on how to assess potential lending headroom. This uncertainty restricts their operational capacity.

This paper reviews aspects of credit rating agency methodology that are most impacting MDBs. Building on an earlier study (Humphrey, 2015), the paper reviews developments in rating agency methodologies in the past two years and takes stock of the current situation. The intention is to help MDBs maximize the use of shareholder capital, in the current context and in years to come. The conclusions of this study are not intended as arguments for or against an MDB capital increase, which involve many issues beyond capital adequacy measurement. In light of the scale of investment needs to achieve global development goals, the major MDBs would likely need a combination of measures proposed in this paper *as well as* an increase in shareholder capital.

Standard and Poor’s

The methodology used by S&P—the largest of the rating agencies—is highly quantitative and mechanical compared to the other two agencies. This offers greater transparency, but the way S&P calculates MDB capital adequacy is overly conservative, and has impacted MDB lending patterns in recent years.

In particular, S&P’s technique to evaluate the concentrated nature of MDB loan portfolios is highly punitive, in some cases doubling the risk-weighting of MDB loan portfolios. As well, S&P gives relatively little benefit for preferred creditor treatment (PCT), by which MDBs are much more likely to be repaid compared to commercial banks, and are hence much less risky. Two recent analyses of S&P’s methodology (Perraudin et al. 2016 and Settimo 2017) conclude that MDBs could lend substantially more based on existing capital, if S&P used a more industry-standard approach to portfolio concentration and PCT.

S&P has pointed out that these conservative techniques are more than offset by a relatively generous approach to incorporating highly-rated MDB callable capital into their calculation of capital adequacy. Based on 2016 numbers and a cautious interpretation of S&P’s methodology, the ADB, AfDB, EBRD, IBRD and IDB could theoretically nearly double their loan portfolio based on callable capital (an additional US\$330 billion). However, MDBs have been reluctant to make use of this headroom, and unlike S&P do not factor in any portion of callable capital into

shareholder equity as part of their capital adequacy calculations. These numbers are to give a sense of potential scale, and are not precise estimates of actual existing headroom.

Currently S&P is in the process of revising their MDB methodology. Although the revision is not yet confirmed, the outlines are relatively clear. First, S&P is not changing their approach to portfolio concentration, despite criticism. Second, it is modifying the way it evaluates PCT, by focusing not on the country borrower, but rather on the loan repayment track record of the MDB as a whole. MDBs have some concerns regarding the way this proposed change will be operationalized in S&P's calculations. Third, S&P is broadening the inclusion of callable capital in a way that, based on 2016 numbers, would more than double potential lending headroom to over US\$700 billion. Lastly, S&P is increasing its ability to use qualitative judgments, making the methodology slightly less mechanical and transparent.

Fitch

In the summer of 2016, Fitch published a revised methodology for rating MDBs. The new methodology does not present serious challenges for most of the major MDBs, although ambiguities in the methodology make it unfeasible for MDBs to estimate the impact of different operational scenarios on their rating. The exception is AfDB, which in the near future may face difficulties maintaining its AAA rating. This is due to a combination of a low capital adequacy indicator and Fitch's qualitative judgment on AfDB's business strategy and operating environment. Fitch's methodology for assessing shareholder support based on callable capital may become an issue for other MDBs in the medium term, in the absence of a capital increase.

Moody's

The major MDBs have found Moody's to be the least problematic of the three rating agencies. Moody's is perceived to take a more qualitative approach that uses financial ratios as a starting point for their analysis, but then gives analysts and rating committees more flexibility to make judgments based on their views of MDB characteristics that are not quantifiable. MDBs consider Moody's as being the most interested in their broader development mandate and strategy compared to the other two agencies. At the same time, it is difficult for MDBs to estimate operational headroom under Moody's methodology, due to its qualitative nature. Moody's is expected to revise their MDB methodology in the next two years, although this has not been confirmed by the agency.

Conclusions and Policy Options

Rating agency criteria for MDBs have evolved substantially in recent years, and have become a concern for development finance. No obvious solution is available to fully address this problem, but MDB management and shareholders do have a number of options at their disposal.

Coordinate actions by MDBs related to rating agencies and capital adequacy

A first overarching policy recommendation is for the major MDBs to take a more system-wide approach to maximizing financial capacity. Such a shift does not mean MDBs give up their individual mandates, but rather take collective action in specific, clearly-defined areas that improve their capacity to achieve common goals defined by shareholders. Developing more

homogenous, transparent and comparable internal models to evaluate capital adequacy is one place to start. The recommendations below are other potential areas of increased coordination.

Commission a credible external agency to review MDB capital adequacy

An external review of MDB capital adequacy by a respected authority in the international community and financial markets, like the Basel Committee on Banking Supervision or Bank for International Settlements, would provide a useful yardstick to promote a convergence in rating agency methodologies. Analysts at all three rating agencies said they would welcome such a review and would take it into account in revising their methodologies. An external review by a top-notch university finance department is also an option, but less likely to be influential.

Incorporate a portion of highly-rated callable capital into MDB capital adequacy calculations

Callable capital was specifically designed to give MDBs greater financial security, but currently is of little operational value. S&P's methodology of including callable capital permits a substantial increase in MDB loan portfolios while still retaining a AAA rating, and the other agencies also give credit for callable capital in their methodologies. Incorporating a portion of highly-rated callable capital into MDB internal capital adequacy models to expand lending would not threaten the financial strength of MDBs, and would not increase the vanishingly remote chance of callable capital actually being called.

Evaluate the costs and benefits of sub-AAA rating, and share the analysis with shareholders

This paper does not recommend that any major MDB target a sub-AAA rating. Rather, MDBs should collectively analyze the costs and benefits of a AAA rating, and communicate that to shareholders in detail. A lower bond rating may mean higher funding costs and have other potential disadvantages, but it can allow MDB balance sheet to grow substantially. A sub-AAA bond rating may permit some MDBs to be more useful to their members, although would make less sense for others like the World Bank.

Increase coordination on balance sheet optimization efforts

MDBs should expand incipient efforts to maximize their balance sheets. Exposure exchanges—such as that undertaken by IBRD, AfDB and IDB in 2016—can be explored with other regional or sub-regional MDBs. Other options to create lending headroom include insurance coverage for a portion of loan portfolios or selling exposure to a package of existing loans to external investors, all of which can strengthen capital adequacy without new shareholder capital.

Consider new measures to build MDB equity

In addition to potential increases in shareholder capital, MDBs should consider other techniques to build equity. One obvious—though politically complex—option is to reduce allocations out of net income diverted to shareholder causes (particularly at IBRD, IFC and AfDB), and build reserves to expand lending headroom. More innovative options include issuing subordinated debt to institutional investors like sovereign wealth funds, pension funds and central banks, or creating a subordinated, dividend-earning shareholder class for sovereign-linked institutional investors.

Introduction

Multilateral development banks (MDBs) are critical to support the provision of physical and social infrastructure in the developing world required to keep pace with global growth and put our planet on a more sustainable growth path. MDBs by themselves will only supply a very small share of the estimated US\$1-3 trillion per year required to address global infrastructure gaps in the coming years,¹ but their activities are uniquely important, as recognized by the G20 and independent experts.² Without a strong system of MDBs, there is no chance to shift development finance levels from “billions to trillions” or achieve the Sustainable Development Goals.

However, MDBs need a solid capital foundation, and at the moment this foundation is uncertain. A key reason is that increasing MDB capital in line with the development goals shareholders are asking them to achieve is politically complex. This is unfortunate, as an investment in MDB share capital generates extraordinary returns compared to bilateral aid programs, due to the powerful MDB financial model. For example, shareholders have contributed a total of US\$16.1 billion to the World Bank’s IBRD window since 1944. With that capital, IBRD has made nearly US\$700 billion in loans, generated about US\$50 billion in surplus³ and paid for the finest development research body in the world—without using up a penny of the original shareholder capital.

A second major reason—and the focus of this paper—is a lack of clarity on how much MDBs can lend based on the capital they do have. While all MDBs have their own internal capital adequacy models, a key consideration is how credit rating agencies view MDB capital adequacy. The major MDBs obtain most of their lending resources by issuing bonds on international capital markets. As a result, MDBs must balance their developmental mandate with the views of bond markets, and in particular, the “Big Three” credit rating agencies of Standard and Poor’s (S&P), Moody’s and Fitch.⁴ Rating agencies have taken different (and frequently changing) approaches to evaluating MDBs, in some cases using highly conservative formulas and in other cases not revealing how their assessments are undertaken. As a result, MDBs face substantial uncertainty estimating potential lending headroom according to agency criteria compared to their own internal models, which can limit their operational capacity.

The aim of this paper is to clarify the aspects of credit rating agency methodology that are most impacting MDBs, to make policy makers and the broader development community more aware of this increasingly important but little understood limitation to MDB activities. Building on an earlier study (Humphrey, 2015), which focused primarily on S&P’s methodology, the paper reviews developments in rating agency methodologies in the past two years and takes stock of the current situation. It concludes with a series of policy options that MDB shareholders and other stakeholders may consider to address the challenges posed by rating agency methodologies to MDB development goals.

¹ For estimates on infrastructure investment needs in the coming years in the developing world, see for example McKinsey (2016), Global Commission on Climate and Economy (2016) and Bhattacharya et al. (2016).

² See G20, 2015 and Global Commission on Economy and Climate, 2016.

³ US\$28 billion allocated to IBRD equity as retained earnings (almost double shareholder paid-in capital) and another US\$23 billion as grant resources to the poorest countries.

⁴ See Humphrey, 2017 for a general discussion of this dynamic.

The conclusions of this paper are not intended as an argument for or against a general capital increase at the major MDBs. Such discussions involve agreement on what shareholders want a given MDB to achieve in the coming years and a comprehensive operational plan required to do so. Capital adequacy measurement is only one part of such a decision. The study is oriented toward encouraging MDBs to make the most effective use of scarce shareholder capital, in the current context and in years to come. In light of the scale of investment needs to achieve global development goals, the major MDBs would likely need a combination of some measures proposed in this paper *as well as* an increase in shareholder capital.

The study focuses on the public and private non-concessional windows of the World Bank as well as the four large regional MDBs (African, Asian and Inter-American Development Banks and European Bank for Reconstruction and Development), due to their potential for supporting global development goals, and in particular the provision of infrastructure, in line with the agenda of Argentina’s leadership of the G20 in 2018.⁵ For the sake of simplicity, this paper terms these MDBs collective as “the major MDBs”.

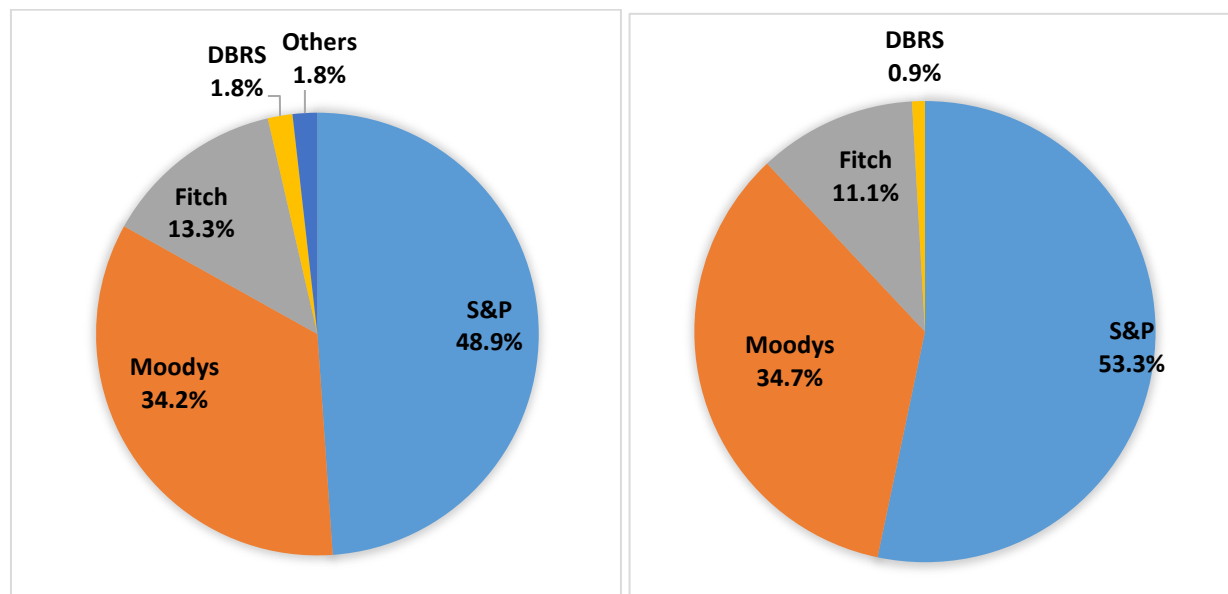
Overview of Credit Rating Agencies and MDBs

The major MDBs raise the vast majority of resources used for their operations from international capital markets via bond issues. The World Bank’s International Bank for Reconstruction and Development (IBRD) issued US\$56 billion in medium- and long-term bonds in 24 different currencies in fiscal year 2017, and another US\$7 billion in short-term paper. The regional MDBs are smaller and hence have reduced financing needs, but also issue a substantial volume of bonds each year. For example, Asian Development Bank (ADB) issued US\$20.6 billion in medium- and long-term bonds in 2016, and another US\$8.3 billion in short-term paper.

As a result of their dependence on capital markets, MDBs must pay considerable attention to the views of credit rating agencies, and in particular, the “Big Three” agencies of S&P, Moody’s and Fitch. These three agencies account for the vast majority of bond ratings issued on international markets—well over 95% in both the U.S. and Europe in 2016, and up to 99% for ratings on government securities (the segment to which MDBs pertain) (Figure 1). The next largest global agency, DBRS, accounted for less than 2% of bond ratings in 2016. S&P is by far the largest, followed by Moody, with Fitch in a distant third place.

⁵ The paper does not include the European Investment Bank (EIB), the largest MDB in the world, as its operations and shareholding are focused mainly on Europe. The Asian Infrastructure Investment Bank (AIIB) and World Bank’s International Development Association (IDA) are also not included as their track records as rated MDBs are too short (both first rated in 2016). The New Development Bank (NDB) does not yet have an international bond rating. A number of regional institutions—notably the Andean Development Corporation (CAF) and Islamic Development Bank (IsDB)—have bond ratings and provide significant development finance, and others like the Central American Bank for Economic Integration, West African Development Bank and Trade and Development Bank are growing quickly. However, the shareholder structure of these MDBs is substantially different, with minimal or no participation of industrialized non-borrower countries. While this has certain advantages, it also complicates coordination with the major MDBs.

Figure 1. Share of Outstanding Ratings Issued in U.S. Market, All Ratings (Left) and Government Securities Only (Right)



Source: SEC 2017.

The World Bank and all major regional MDBs have remained at AAA for their entire history (with one temporary exception) with all of the Big Three rating agencies.⁶ The top-level ratings result in extraordinarily strong access to capital markets by MDBs, which in turn provides substantial benefits to MDBs as they pursue their development mandate. Not only do MDBs issue bonds at some of the lowest interest rates of any bond issuer, but they are also able to issue bonds in the tightest capital market conditions, due to investors' preference for the safest investments in times of crisis ("flight to quality"). This is highly beneficial to the developmental goals of MDBs, as it means MDBs borrowers pay less for their development loans than would otherwise be the case and can access resources even in times of crisis.

In recognition of these benefits, shareholder countries have mandated that all the major MDBs run their operations in such a way that ensures a continued top-notch bond rating. In the case of the Inter-American Development Bank (IDB), this mandate specifically refers to maintaining a AAA rating from all of the Big Three firms, while the policies of other major MDBs simply call for maintaining a AAA rating, without specifying the agencies by name. The G20 has reiterated this goal in recent years as part of its efforts to expand the balance sheets of MDBs to help achieve the Sustainable Development Goals for 2030. It has thus been incumbent on MDB management to balance the twin goals of receiving a AAA rating while also meeting the development goals set by shareholders.

Balancing these two objectives has become more difficult since the global financial crisis. After decades of giving all MDBs backed by wealthy industrial nations a AAA rating with little serious scrutiny, rating agencies began to overhaul their rating methodologies for MDBs in the late 1990s

⁶ The African Development Bank (AfDB) was first created just by African nations, and it was only after admitting non-borrower members that the bank obtained a AAA bond rating from S&P in 1990. It was downgraded to AA+ by S&P between 1995 and 2003 due to sovereign debt problems in Africa.

and early 2000s. This process accelerated in the wake of the global financial crisis, as rating agencies faced regulatory pressure to tighten up their methodologies for all asset classes, including MDBs, and to make the methodologies more transparent. S&P implemented a new methodology in 2012 that led some MDBs to change their lending patterns and take other actions due to the perception that they were nearing capital adequacy limits (see Humphrey, 2017 for details). As a result, S&P's methodology became the focus of intense interest among the MDB policy community. In 2016, Fitch overhauled their MDB methodology in a way that is causing difficulties in particular for the African Development Bank (AfDB). Moody's methodology is currently viewed as the least problematic for the major MDBs, but this could change as the agency is expected to revise its methodology in the next 1-2 years.

Standard and Poor's

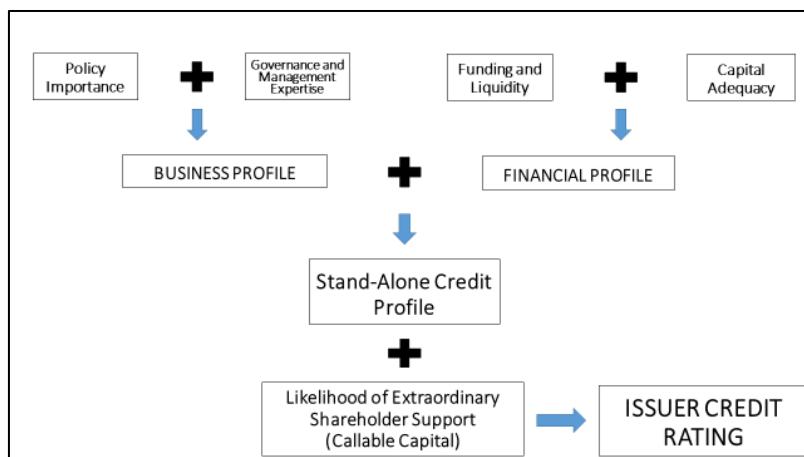
S&P is the most important of the Big Three agencies for the major MDBs, due to its size and influence in capital markets. The methodology used by S&P is highly quantitative and more mechanical compared to the other two agencies. This offers greater transparency and allows MDBs to estimate in general terms the impact of different operational scenarios on key rating ratios. While MDBs welcome this transparency, the way S&P calculates MDB capital adequacy is viewed as overly conservative, and has had an impact on the lending patterns of several MDBs in recent years. At the same time, S&P's technique for evaluating MDB callable capital appears to offer substantial potential lending headroom, although MDBs themselves have been reluctant to make use of that headroom.

The following sub-section briefly reviews key issues in S&P's methodology (described in more detail in Humphrey, 2015), provides an update on the evolution of MDBs in several key ratios, and summarizes the findings of two independent papers published on the S&P's approach to MDBs in the last two years. The subsequent sub-section addresses the issue of callable capital and potential MDB lending headroom under S&P's methodology, while the third sub-section outlines the main aspects of S&P's ongoing MDB methodology revision, expected to be completed by mid-2018.

Key issues with current methodology

In broad terms, S&P's methodology is based on the one used for private financial institutions, with modifications to address the unique characteristics of MDBs. S&P uses several metrics to evaluate MDB financial and business profiles to arrive at a "stand-alone" credit profile (SACP), and then adds a bonus to account for support from government shareholders to arrive at the final issuer credit rating (ICR) (Figure 2). The business profiles of the major MDBs have in past years changed rarely, while the financial profile—in particular the capital adequacy sub-component—has been more prone to fluctuations. See Annex Tables A1-A4 for more details on S&P's criteria.

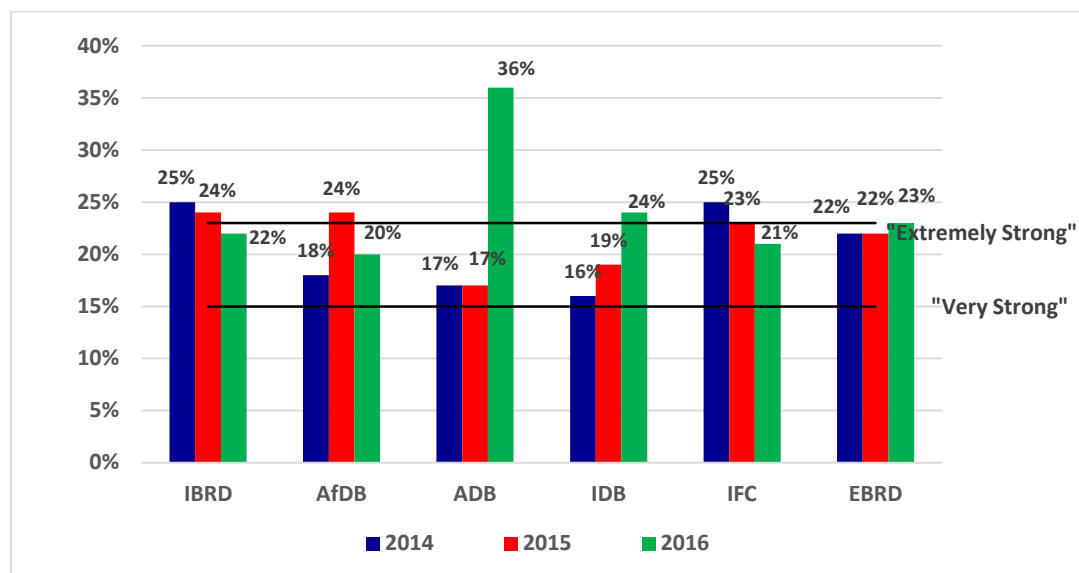
Figure 2. Overview of S&P Evaluation Methodology for MDBs (2016)



Source: Own elaboration based on S&P, 2017a.

Capital adequacy is calculated with S&P’s Risk-Adjusted Capital (RAC) ratio: MDB shareholder equity divided by risk-weighted assets. While the RAC accounts for only one-quarter of an MDB’s SACP (one-half of the financial profile), the fact that it has the most year-to-year fluctuations means it is the factor most likely to lead to a change in an MDB’s SACP. Also, as a measure of capital adequacy it serves as a simple metric to compare the relative financial strength of MDBs in the eyes of bond investors. As such, the RAC ratio has become a critical variable tracked closely by all MDBs. All the major MDBs fall into the RAC categories of either “extremely strong” (above 23%) or “very strong” (above 15% and up to 23%) (Figure 3).

Figure 3. Risk-Adjusted Capital Ratios, Selected MDBs (2014-2016)



Source: S&P 2017a.

Note: The sharp increase in the RAC of ADB and IDB is a result of the merger of their concessional lending portfolios into the ordinary lending window equity, which took place on January 1, 2017.

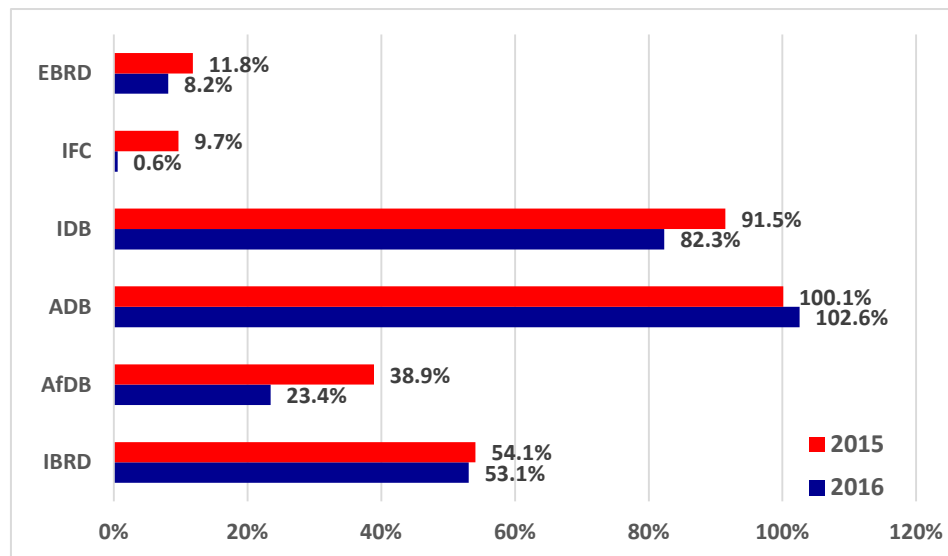
S&P’s overall capital adequacy approach—including risk-weighting assets—is perceived by MDBs to be relatively transparent and technically more sophisticated to the those used by

Moody’s and Fitch. However, two key adjustments made by S&P to the RAC ratio are highly problematic: single-name concentration (SNC) and preferred creditor treatment (PCT). Both relate to aspects of MDB operations that are fundamentally different from commercial banks, and the MDBs argue that S&P’s approach to account for them in the RAC is excessively conservative.

The SNC is a penalty increasing the risk-weighting of an MDB’s portfolio depending on how concentrated it is to certain borrowers, based on a model developed by Gordy and Lütkebohmert (2007) for commercial banks with at least 200-500 loan exposures. Public sector-oriented MDBs, however, have a much lower number of individual exposures in their portfolio—the IBRD had only 72 borrowers in its most recent financial statement, while the regional MDBs had far fewer public sector borrowers (27 for AfDB, 25 for IDB and 29 for ADB). As a result, the Gordy and Lütkebohmert formula results in a very high penalty. When a single large borrower is considered highly risk—as, for example, was the case for Argentina in past years with IDB—this can result in a very large SNC penalty, far beyond the 3-20% penalty expected by the model’s authors.

In 2016, IBRD, AfDB and IDB engaged in a complex balance sheet exposure exchange specifically to reduce S&P’s SNC penalty. The exchange successfully reduced the SNC for all three MDBs,⁷ but it is still a substantial weight on the RAC of several MDBs (Figure 4), and according to MDB staff the prospects for meaningful exposure exchanges in the coming years are limited. In the case of ADB, the SNC by itself effectively more than doubles the size of risk-weighted assets, thus requiring twice as much shareholder equity to achieve the same RAC level that would exist without the SNC. The SNC is applied to sovereign portfolios, while a different concentration formula that results in a substantially lower penalty is applied to the private-sector portfolios of European Bank for Reconstruction and Development (EBRD) and International Finance Corporation (IFC).

Figure 4. Single-Name Concentration Penalty on Risk-Weighted Assets (2015/16)



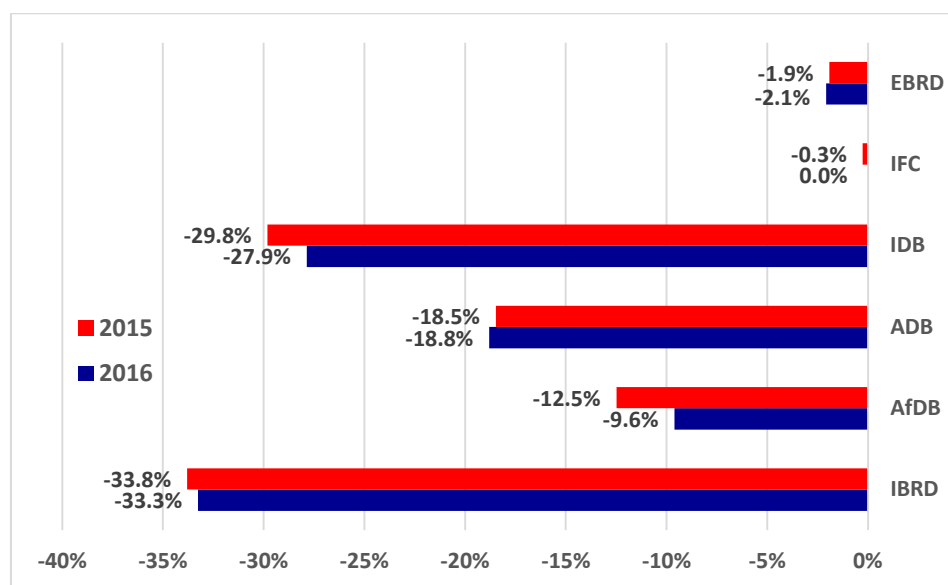
Source: Author’s elaboration, based on data from S&P, 2017a.

⁷ The impact was most relevant for IDB and AfDB, while IBRD acted mainly as an intermediary to facilitate the transaction. For more details on the exposure exchange, see the 2016 financial statements of the MDBs.

MDBs have generally benefited from preferred creditor treatment (PCT), by which borrower country governments informally keep MDBs first in line to be repaid in the event that the government is facing payment difficulties. PCT is based on the official relationship between countries and MDBs, the non-profit, development orientation of lending operations and the fact that MDBs will continue to lend even if borrowers are facing financial problems, whereas private sector lenders will not. The result of PCT is that MDBs have extremely strong repayment records compared to commercial banks, and even in the event of (rare) delays in repayment, MDBs are eventually always repaid and do not write off public-sector loans.⁸

However, PCT is not a contractual stipulation but rather an informal status, and is thus difficult to quantify. S&P has elected to do so with a formula based on the share of external debt a country has with multilateral lenders, which is a questionable approach on both conceptual and empirical grounds (see Humphrey 2015 for a fuller analysis). When factored into S&P’s calculations, the PCT bonus reduces the level of risk-weighted assets, but MDBs argue that it does not sufficiently recognize the superb repayment record of their portfolios. The bonus assigned by S&P for PCT has not materially changed in recent years for any of the major MDBs (Figure 5).⁹

Figure 5. Preferred Creditor Treatment Bonus on Risk-Weighted Assets (2015/16)



Source: Author’s elaboration, based on data from S&P, 2017a.

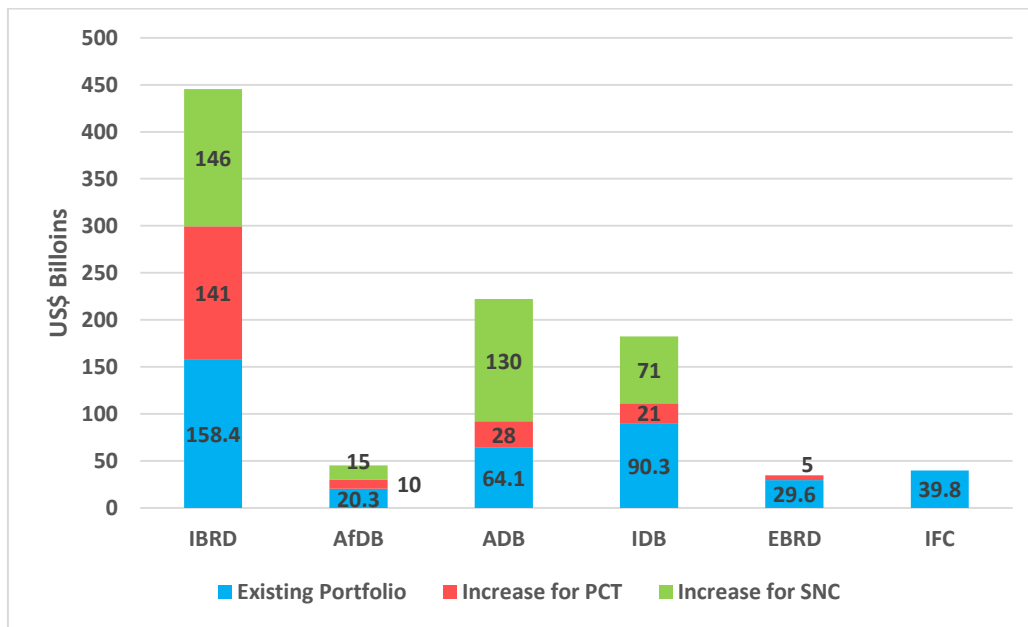
Two papers published since 2016 assess S&P’s evaluation methodology for MDBs. Perraudin et al. (2016) criticizes several aspects of S&P’s rating approach to the IDB, and in particular the way that S&P calculates SNC and PCT. The authors contend that the SNC penalty methodology based on Gordy and Lütkebohmert (2007) is inconsistent with other aspects of S&P’s capital adequacy calculation, and using an industry-standard, ratings-based credit risk model would result in a much lower SNC penalty. The authors also suggest that the PCT adjustment “appears much smaller than justified by the loss experience of the IDB and other MDBs.” (Perraudin et al.,

⁸ This does not include MDB participation in debt relief measures such as HIPC and MDRI, which some may argue constitute de facto loan write offs by MDBs.

⁹ The PCT adjustment is not significant for EBRD or IFC, as their private sector lending does not benefit from special treatment under S&P’s methodology. EBRD’s public sector loan portfolio does benefit from PCT.

p. 42). Settimo (2017) extends this approach to other major MDBs, and calculates the potential increase in lending headroom if S&P were to use an industry-standard credit risk model for SNC and PCT and with similar inputs. Based on fiscal year 2015 data, the analysis finds that the six MDBs considered in this paper would have increased lending headroom of over half a trillion dollars, above the existing portfolio of US\$400 billion (Figure 6).

Figure 6. Potential Portfolio Headroom Using Alternative Methods of Calculating PCT and SNC (2015)



Source: Based on Settimo (2017).

Note: Calculations made with FY2105 data using an industry-standard credit risk model for SNC and PCT, rather than S&P’s methodology. All other S&P rating factors remaining constant.

The Headroom Debate Under S&P’s Current Methodology

Following the implementation of S&P’s 2012 methodology, the agency has been the object of considerable attention and no small amount of pressure on the part of MDB management as well as G20 shareholder countries, for the reasons discussed above. One of S&P’s responses has been to point out that its treatment of callable capital does in fact permit considerable further lending headroom among the major MDBs, while still retaining their AAA rating.

S&P qualifies a portion of each MDB’s callable capital as actual shareholder equity, functionally equivalent to paid-in capital, and adds it into the numerator of the RAC calculation as part of its final rating assessment step (see Figure 2, above). The result can lift an MDB’s final rating up to three notches above its stand-alone credit profile (SACP). For MDBs aspiring to a AAA rating, S&P only includes callable capital that is itself from AAA-rated shareholders, which amounts to about 15% of total callable capital on average across the major MDBs¹⁰ and does not include several major shareholders like the U.S. (AA+), France (AA) or the UK (AA). The other rating

¹⁰ IFC is the only one of the six MDBs considered in this report that has no callable capital. The 15% average figure is for the other five.

agencies also give credit for callable capital (as discussed below), but not in the calculations of capital adequacy.

None of the major MDBs need all of their callable capital uplift to achieve a AAA final rating. As of April 2017, ADB, IBRD and EBRD all had SACP ratings of aaa, meaning they would have a final AAA rating even without any callable capital. AfDB and IDB both had SACP ratings of aa+, meaning they required only enough callable capital sufficient to lift their rating one notch to achieve AAA. In light of the amount of AAA callable capital available, all five MDBs have the potential to expand their loan portfolios considerably while still being able to reach a AAA rating based on S&P's methodology.

S&P pointed this fact out in a commentary note released in 2016 entitled "How Much Can Multilateral Institutions Up the Ante?", which implied that 19 rated MDBs¹¹ could collectively expand their loan book by US\$1 trillion (based on end-2014 data). As might be expected, this note spurred considerable interest on the part of MDBs and shareholders, who pressed S&P for clarification. A year later, S&P released a second commentary (S&P 2017b) that added several caveats and stating that the "headline number [US\$1 trillion] should not lead to simplistic conclusions" (S&P, 2017b, p. 1). Taking into account expanded liquidity required to support a growing loan book, the expansion in lending would realistically amount to US\$700-800 billion, and could be limited further by impacts to the business profile of one or more MDBs. As well, S&P emphasized that the calculations depend on no AAA-rated shareholders getting downgraded and holding each MDB's portfolio risk constant.

Based on end-2016 data, this paper finds that ADB, AfDB, EBRD, IBRD and IDB could collectively nearly double their loan portfolios based on end-2016 numbers and still retain a AAA bond rating from S&P (Table 1).¹² This calculation incorporates a 10% margin of discretion for the RAC (which S&P stipulates in its methodology) and includes a 25% margin for increased liquidity. Should the MDBs direct this lending to borrowers that have a relatively smaller share of the current portfolio—hence diluting portfolio concentration—the portfolio headroom could be even larger. These estimates do not include data following the merger of the concessional and non-concessional lending windows at ADB and IDB at start-2017, meaning the headroom for these two MDBs would be larger (considerably larger in the case of ADB).

These headroom numbers are only to give a sense of potential scale, and are not intended as precise estimates of actual existing headroom. They are intended to illustrate that if MDBs were to take callable capital into account in their internal capital adequacy models, even in a conservative fashion used by S&P, substantially more lending headroom is available while maintaining a AAA rating.

¹¹ S&P did not break down their calculation to show the contribution of each MDB to the US\$1 trillion figure.

¹² This number is considerably lower than S&P's estimates because it only looks at five MDBs, rather than the 19 included by S&P. In particular, the European Investment Bank—the largest MDB in existence, but which lends mainly in Europe rather than the developing world—is not included here.

Table 1. MDB Headroom (in US\$ Millions), end-2016

	ADB	AfDB	EBRD	IBRD	IDB
Business Profile	Extremely Strong	Very Strong	Very Strong	Extremely Strong	Very Strong
Liquidity and Funding	Strong	Strong	Very Strong	Strong	Strong
Required Finance Profile Rating	Very Strong	Extremely Strong	Very Strong	Very Strong	Extremely Strong
Minimum RAC needed*	16.6%	25.4%	16.6%	16.6%	25.4%
Adjusted Common Equity	17.0	8.9	16.2	37.1	26.3
AAA Callable Capital	25.3	11.8	5.6	36.9	11.9
Maximum Risk-Weighted Assets (RWA)	255.0	81.4	131.7	445.6	150.4
End-2016 RWA	104.7	44.6	69.7	170.3	126.3
RWA Headroom	150.3	36.8	62.0	275.3	24.1
End-2016 Portfolio**	69.3	22.8	30.0	174.9	92.5
Portfolio Headroom***	99.5	18.8	26.7	282.6	17.6
Liquidity Increase of 25%	24.9	4.7	6.7	70.7	4.4
Potential Increase in Loan Portfolio	74.6	14.1	20.0	212.0	13.2

Source: Author's calculations, based on S&P 2017a.

* Incorporates a 10% margin above the cut-off values required by S&P. ADB, EBRD and IBRD are modeled as needing only "very strong" capital adequacy to achieve a AAA based on the most recent S&P evaluations.

** Taken from S&P, 2017a and not from MDB balance sheets, for the sake of consistency.

*** Calculated by taking the same ratio with RWA headroom as between existing RWA and existing portfolio. This implies maintaining the same risk profile with new lending as exists currently.

As the above calculations demonstrate, S&P's decision to include AAA-rated callable capital in their capital adequacy calculation holds the potential to expand operations substantially across the major MDBs, even using conservative assumptions. As a result, some shareholders have questioned why MDBs have not made use of this apparent lending headroom. MDB management have thus far argued that doing so would not be prudent, according to their own internal capital adequacy models. These internal models—which are not public—do not incorporate callable

capital. MDB management has instead suggested that a safer course of action to expand capital adequacy is a combination of i) building shareholder equity through reserve accumulation (mainly via higher prices on MDB loans and administrative cost control), ii) balance sheet optimization measures such as exposure exchanges and iii) as a last resort, requesting more capital from shareholders.

What explains this reticence to make use of callable capital? It is, after all, a fundamental part of the foundation of all the major MDBs (apart from IFC), which has been in place since their creation and is an international treaty obligation on the part of each shareholder. The main concern expressed by MDB staff is that AAA-rated shareholders could be downgraded, potentially leading to knock-on downgrades of any MDB relying on callable capital. This is a non-negligible concern, in light of the fact that several major shareholders have lost their AAA-rating in recent years, including the US, Japan, France and the UK. In fact, one current AAA-rated sovereign (Australia) is on a negative outlook. However, a partial use of callable capital-created headroom would mitigate that concern. As well, as discussed below, S&P is proposing to now incorporate AA+ callable capital into their upcoming revised methodology, which would greatly increase margin for error, as callable capital from the U.S. (the largest shareholder in all the major MDBs) would now be included.

A second concern is that Moody's and Fitch have different bond rating methodologies that evaluate capital adequacy in different ways. Hence, it may be that expanding the loan book would have no impact on S&P's AAA rating, but could lead to a downgrade by one or both of the other agencies. As will be discussed in more detail below, Moody's and Fitch have more subjective approaches to MDB ratings, and are strongly shaped by how MDBs compare with one another. If the major MDBs were to move in a coordinated manner to incorporate a conservative portion of their highly-rated callable capital into capital adequacy calculations, with the explicit backing of major G20 shareholders, it is unlikely that either Moody's or Fitch would take a rating downgrade action. However, before undertaking such a move, MDBs would be advised to (collectively) engage with Moody's and Fitch to assess their potential reactions to expanding their balance sheets based on the inclusion of a portion of callable capital. To give agencies greater comfort, MDBs and shareholders could spell out the procedure for a capital call more explicitly.

A deeper reason is that MDBs have long been accustomed to managing their finances in such a way as to avoid even the most remote risk of having to call on callable capital. For the large shareholders in particular—who provide a substantial share of callable capital—the idea of a capital call is unthinkable, as the resources are not budgeted. As one World Bank executive director put it years ago, aptly expressing the sentiment of major non-borrower shareholders, “Management and the Board should think about callable capital as a Christian thinks about heaven, that it is a nice idea but no one wants to go there because the price of admission is death.”¹³ Protecting callable capital in good measure explains why MDBs have always operated highly conservatively compared to commercial financial institutions.

This is a perverse outcome: callable capital was created specifically to give MDBs greater

¹³ As quoted in Kapur et al. 1997, p. 991.

security to pursue their development mandate, but under current practices it is ignored entirely when MDBs calculate their financial position using internal models. Reluctance to make use of the one area that S&P—otherwise quite conservative—has pointed to as a unique strength of MDBs seems particularly short-sighted, especially in times of greater demands on MDBs. Incorporating a portion of highly-rated callable capital into MDB capital adequacy calculations, in line with S&P’s approach, would not change the overall extremely high financial strength of MDBs. Doing so would not increase the chance of actually having to use callable capital—only be conceivable in a truly catastrophic global economic meltdown, far surpassing anything witnessed in recent history.

S&P’s Proposed MDB Methodology Revision

In October 2017, S&P circulated a Request for Comment (RFC) on proposed changes to its methodology for rating MDBs (S&P, 2017c). The RFC outlines a number of proposed changes, although it maintains the overall structure and main criteria of the existing methodology. S&P has since received feedback from all the major MDBs and is in the process of making further refinements. Overall, MDB staff do not expect the revision to lead to major shifts in their efforts to maintain a AAA rating with S&P, with the possible exception of the PCT assessment, depending on the final formula taken by S&P. Due to the methodology’s provisional nature (the final version is expected in mid-2018), the following section addresses only four key points in general terms.

First, S&P plans to make no changes to its technique for assessing single-name concentration penalty (SNC) on MDB loan portfolios, despite substantial criticism of the formula. S&P has acknowledged that the model used was not intended for banks with few exposures, like MDBs, but the agency nevertheless contends that it provides a useful yardstick to compare relative portfolio concentrations among MDBs. The agency maintains that it has tested other approaches, including a Monte Carlo simulation similar to that used by Perraudin et al. (2016), with results not materially different from the current technique. It may also be the case that S&P feels obliged to maintain the SNC approach because MDBs undertook a complex legal and financial exposure exchange arrangement in 2016 designed specifically address the SNC criteria. Major changes now would leave the agency open to accusations of irresponsibility and capriciousness.

Second, the technique for quantifying preferred creditor treatment (PCT) has been revamped, in recognition of the previous formula’s disconnect from MDB track records. The new technique places each MDB in one of three categories (weak, adequate, strong) based on their portfolio’s loan repayment track record. MDBs have collectively expressed unease with this proposed approach. Having only three categories could mean that a small deterioration in an MDB’s loan portfolio repayment record—trigger, for example, by one country falling into arrears—might push it into a lower category, with a substantial resulting impact on its RAC ratio and rating, even though all other borrowers still grant PCT to the MDB. As the response letter from a group of MDBs to S&P put it, “...one country’s behavior does not necessarily imply ‘contagion’ to the entire portfolio” of an MDB (MDB, 2017). S&P has emphasized that it does not intend to make any category changes based on small shifts in year-to-year portfolio performance, and has also said it would evaluate MDB feedback on the formula as part of the RFC process for their methodology revision.

Third, a change clearly in favor of MDBs is the decision by S&P to expand its inclusion of callable capital in its calculation of rating uplift based on shareholder support. While previously the major MDBs benefited only from AAA callable capital, the proposed revision would now also include that from shareholders rated AA+. In practice, the main result of this is to include callable capital from the U.S.—the largest shareholder at all the MDBs considered here.¹⁴ Undertaking a similar headroom exercise as done in Table 1 above, this change more than doubles the potential loan portfolio headroom from incorporating S&P-eligible callable capital into MDB capital adequacy calculations (Table 2). The increase is particularly dramatic for IDB, to which the US provides 30% of callable capital. Again, these headroom numbers are only to give a sense of scale, and should not be interpreted as precise estimates of actual existing headroom.

Table 2. Potential Portfolio Headroom Using AAA and AA+ Callable Capital (US\$ Billions)

	AAA Only	AAA and AA+
ADB	74.6	142.8
AfDB	14.1	23.4
EBRD	20.0	26.6
IBRD	212.0	427.5
IDB	13.2	121.4
Total	333.9	741.7

Source: Author’s calculations, based on S&P 2017a.

Note: Uses same assumptions and data as in Table 1 above.

Fourth, S&P intends to increase its ability to use qualitative judgment in deciding MDB ratings, making the methodology marginally less mechanical (although still more so than Moody’s and Fitch). In particular, S&P has included a new “holistic assessment” as a final step before deciding on the end rating, and which can move the rating by a single notch in either direction from the results of the rest of the methodology. The specifics of how the analysis is undertaken is left vague, but S&P has emphasized that it will be used rarely and mainly to ensure that the more mechanical aspects of its model do not lead to extreme results. While this greater subjectivity is a concern, MDB staff see it mainly as a way for S&P to avoid being boxed in by the fact that its methodology is otherwise more transparent and mechanical compared to Moody’s and Fitch.

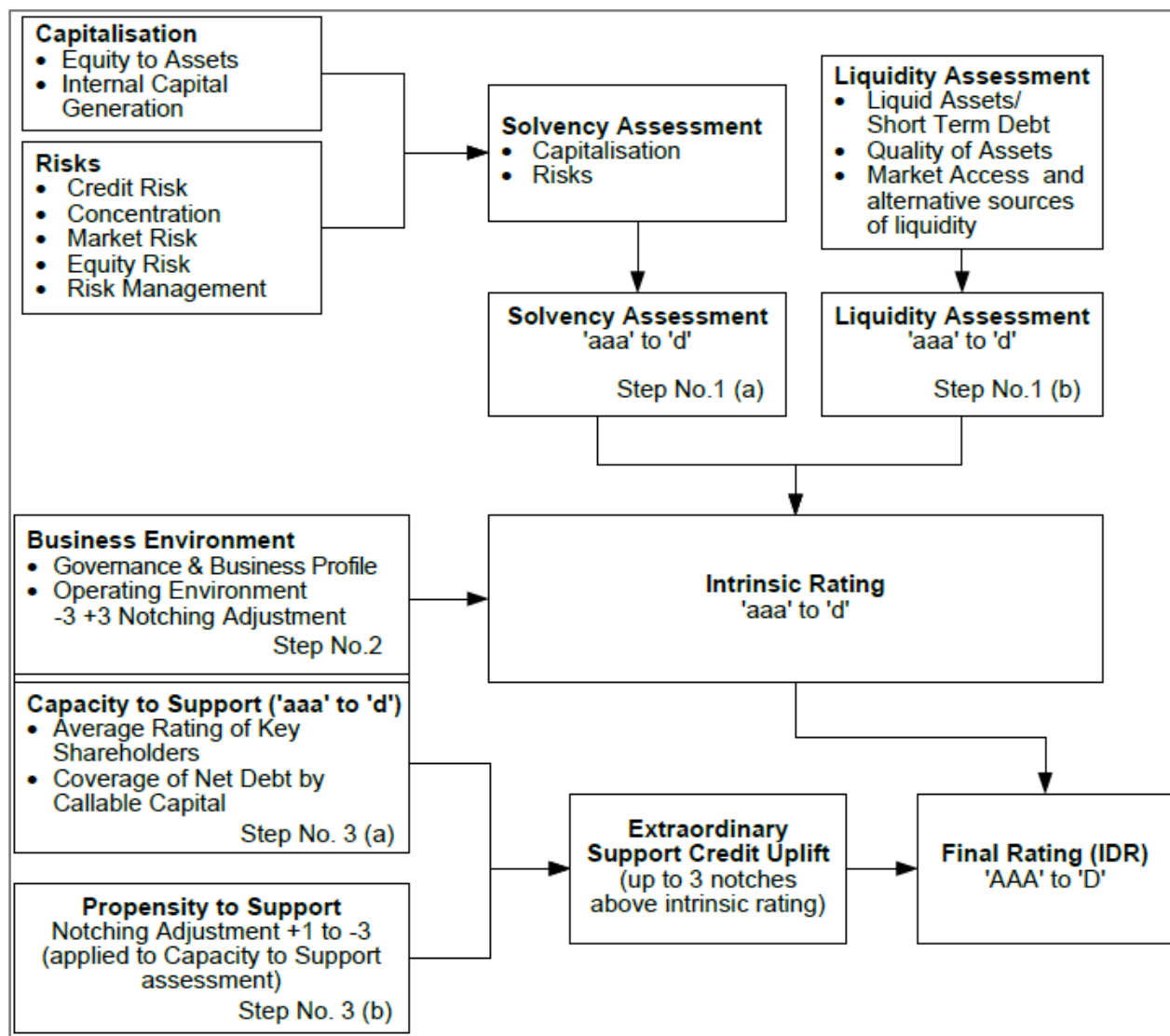
Fitch’s New MDB Methodology

In the summer of 2016, the ratings agency Fitch published a new version of their methodology for rating MDBs and other supranational agencies (Fitch, 2017a). The new methodology uses a similar overall approach and incorporates many of the same variables as previously, but is somewhat more explicit about the values needed to achieve specific assessment sub-categories (see Fitch, 2010 for comparison). It also gives a better sense of how the different pieces are assembled to arrive at a final issuer rating (Figure 7) compared to their previous methodology.

¹⁴ Based on current ratings, callable capital from Austria, Finland and Hong Kong are also now included.

For most of the major MDBs, Fitch’s new methodology does not present serious challenges, although ambiguities in the methodology make it unfeasible for MDBs to estimate the impact of different operational scenarios on their rating. Because Fitch is by far the smallest of the “Big Three” agencies, its ratings are not solicited by all the MDBs. Fitch rates IBRD and IDB on an unsolicited basis (although both MDBs meet with and provide information to Fitch analysts), and does not rate IFC at all. MDBs concur that Fitch takes a less time-consuming approach to analyzing their operations compared to the other two agencies. As one MDB staffer who interacts with the ratings agencies put it, “we have the sense that Fitch doesn’t worry too much about the big MDBs, and as a result, we don’t worry too much about them.”

Figure 7. Fitch Ratings MDB Methodology “Decision Tree”



Source: Fitch, 2017a.

The exception is AfDB, which in the near future may face challenges to maintain its AAA rating from Fitch. Although S&P considers AfDB to be aa+ on a stand-alone basis, on par with the IDB, Fitch gives it an intrinsic rating of aa-, three notches below IDB’s aaa intrinsic rating. AfDB is still able to maintain its AAA issuer rating with Fitch due to the three notches of uplift provided

by its callable capital, but according to current trends this uplift will fall to two notches at some point in 2018 or 2019, potentially leading to a downgrade. As a result, AfDB is facing an urgent need for a capital increase, or it will be forced to severely curtail lending to maintain its AAA rating. Fitch’s methodology for assessing shareholder support based on callable capital may also become problematic for other MDBs in the medium term, in the absence of a capital increase.

Similar to S&P, Fitch first arrives at an “intrinsic rating” for each MDB, based on a combination of a sub-rating for “solvency” and “liquidity” (capped at the level of whichever of the two is lower), which can then be modified depending on Fitch’s assessment of the MDB’s “business profile”. The intrinsic rating can then be strengthened by as much as three notches, based on shareholder callable capital support.¹⁵ Many of indicators for solvency and liquidity are different than those used by S&P, and sometimes lead to very different outcomes—sometimes more favorable to MDBs compared to S&P, and sometimes less favorable. Fitch does not clarify the way in which the sub-variables are weighted and summed, making it difficult for MDBs to get a sense of where their ratings would stand based on future operational scenarios.

In building the intrinsic rating for an MDB, Fitch uses the lower of the solvency and liquidity ratings. The liquidity rating for all the major MDBs is and has for years been comfortably at the very highest level, and as such is not a binding constraint and not analyzed here.¹⁶ For the solvency rating, the key ratio is shareholder equity to total assets¹⁷ (E/A), with no risk weighting. This can fall into one of four categories (Table 3), with the top level making it easiest for MDBs to achieve aaa solvency.¹⁸

Table 3. Fitch Equity to Assets Assessment

Level	Assessment
25% and above	Excellent
15% to 25%	Strong
8% to 15%	Moderate
Below 8%	Weak

Source: Fitch 2017b.

Capitalization is then matched against five risk assessments to arrive at the solvency rating (Table 4). Although the methodology does not specify how the risks are weighted, Fitch has indicated that the most relevant for the major MDBs are credit risk and portfolio concentration risk. Credit risk is assessed by the average rating of borrowers, weighted by their share of the outstanding portfolio. This average rating can be strengthened by up to three notches depending on Fitch’s assessment of the strength of each MDB’s preferred creditor treatment (PCT). Rather than create a complex formula for PCT, as in the case of S&P, Fitch examines each MDB’s non-performing loan history. Similarly, portfolio concentration risk is calculated simply by the ratio of the top

¹⁵ In the case of MDBs without callable capital, Fitch uses another method to assess the likelihood of shareholder support in the event of need. See Fitch 2017a, pp. 12-13.

¹⁶ The main components are the ratio of liquid assets to short-term debt, the quality of treasury assets and access to funding sources.

¹⁷ Minus the fair value of balance sheet derivatives.

¹⁸ An MDB’s net income as a share of equity can also factor into the capitalization assessment. The weighting is not specified, but it is clear that the E/A ratio has a much greater weight.

five borrowers in each MDB’s total portfolio. The assessment values for all five risks¹⁹ are then summed to arrive at the overall risk weighting, using a weighting that is not transparent or replicable.

Table 4. Fitch Solvency Sub-Rating

		Capitalization			
		Excellent	Strong	Moderate	Weak
Risks	Very low	aaa	aaa/aa	aa/a	a/bbb
	Low	aaa/aa	aa/a	a/bbb	bbb/bb
	Medium	aa/a	a/bbb	bbb/bb	bb/b
	High	a/bbb	bbb/bb	bb/b	b/ccc/d

Source: Fitch 2017b.

Currently, two of the five MDBs rated by Fitch have E/A ratios in the range of “strong”—IBRD and AfDB—while the other three are “excellent” (Table 5). As a result of the “very low” assessment for IBRD risk, it receives a “aaa” overall solvency rating. AfDB, however, is assessed as having “low” risk level (driven mainly by Fitch’s assessment of relatively higher credit risk), leading to a “aa” overall solvency rating.

Table 5. Fitch Solvency Assessment Components, 2016/17

	E/A Ratio*
ADB**	38.4%
AfDB	22.9%
EBRD	26.5%
IBRD	16.2%
IDB**	26.1%

* Data from end-2016 for AfDB, EBRD and IDB; early 2017 for ADB and IDB.

** Both ADB and IDB were previously below 25%, but rose at the start of 2017 due to the merger of their concessional and non-concessional lending windows.

After taking the lower of the solvency and liquidity ratings (which, for the MDBs considered here, is equivalent to the solvency rating), the rating can be adjusted up to three notches up or down based on the business environment rating. This is, essentially, an assessment of the risks posed by an MDB’s governance arrangements, business strategy and operating environment (countries of operation), and is largely based on qualitative judgments rather than quantitative values. The business environment step of the methodology is where Fitch has the most discretion to adjust an MDB’s rating in a way that MDBs themselves cannot easily replicate or protect against. Even when an MDB is placed in a given overall risk category (high, medium or low), Fitch has a range of potential adjustments to the intrinsic rating with no clear method for how it chooses among them (Table 6).

¹⁹ The other three risks, which according to Fitch are less relevant to the major MDBs, are: equity risk (for MDBs focusing more on equity investments), market risk and risk management. The weighting of the different risks to arrive at the overall risk assessment varies depending in the characteristics of each MDB.

Table 6. Business Environment Assessment

		Operating Environment		
		High Risk	Medium Risk	Low Risk
Business Profile	High Risk	High Risk (-3 to -2)	High Risk (-2 to -1)	Medium Risk (-1 to +1)
	Medium Risk	High Risk (-2 to -1)	Medium Risk (-1 to +1)	Low Risk (+1 to +2)
	Low Risk	Medium Risk (-1 to +1)	Low Risk (+1 to +2)	Low Risk (+2 to +3)

Source: Fitch 2017b.

For example, the most recent Fitch reports assess both IDB and AfDB’s Business Environment as “medium risk”, but give IDB a one-notch bonus to its solvency rating whereas AfDB is penalized by one notch (resulting in a “aa-” intrinsic rating). The reason behind this differentiation is Fitch’s negative view of AfDB’s business strategy, which it considers overly expansionist and risky by extending lending to formerly concessional countries²⁰ and increasing private sector lending, as well as a higher-risk operating environment due to a higher level of instability in its borrowers compared to other MDBs. This gives the appearance of double-counting, as AfDB is already penalized for having riskier borrowers in the solvency assessment.

Each MDB’s intrinsic rating can then be adjusted upward by a maximum of three notches, based on Fitch’s assessment of callable capital committed by shareholders. Fitch calculates how much highly-rated callable capital is needed to cover an MDB’s net debt (total debt minus AAA/AA-rated treasury assets). If net debt is covered by AAA callable capital, then the MDB receives a shareholder support rating of aaa; if AA+ callable is required, the rating is aa+, and so forth. The difference between an MDB’s intrinsic rating and its shareholder support rating is the potential rating uplift, capped at three notches. Currently, AfDB is the only major MDB needing shareholder uplift to achieve a AAA issuer rating, but its AAA callable capital is projected to no longer cover net debt either later in 2018 or in 2019.²¹

One may question this approach to valuing callable capital, as it is easy to envision situations where callable capital would be essentially useless to an MDB. For example, if an MDB’s intrinsic rating is aa+, but its AAA-rated callable capital is not sufficient to cover net debt, it would receive no uplift at all, and the final rating would be AA+. Currently this would be the case for ADB and EBRD. Both ADB and EBRD have aaa intrinsic ratings and hence do not need uplift to achieve a AAA final issuer rating. But should that situation change and they were to drop to an aa+ intrinsic rating, their AAA-rated callable capital of US\$48 billion and US\$9 billion (respectively) would be of no use at all for their Fitch rating.

²⁰ AfDB modified its lending policy in 2014 to permit some formerly concessional countries to access its non-concessional window.

²¹ Part of the reason for this is a quirk in AfDB’s structure. Because AfDB accounting is based on the IMF’s SDR currency, rather than the US dollar, it must hold treasury assets denominated in Chinese RMB and Japanese yen (which are part of the SDR basket). Because China and Japan are both rated below AA by Fitch, these assets are not subtracted from net debt. AfDB is currently attempting to find a higher-rated institution (like another MDB) to issue private bond placements in these currency, to replace their Chinese and Japanese government bond holdings and gain more space in the Fitch callable capital calculation.

Moody's Methodology

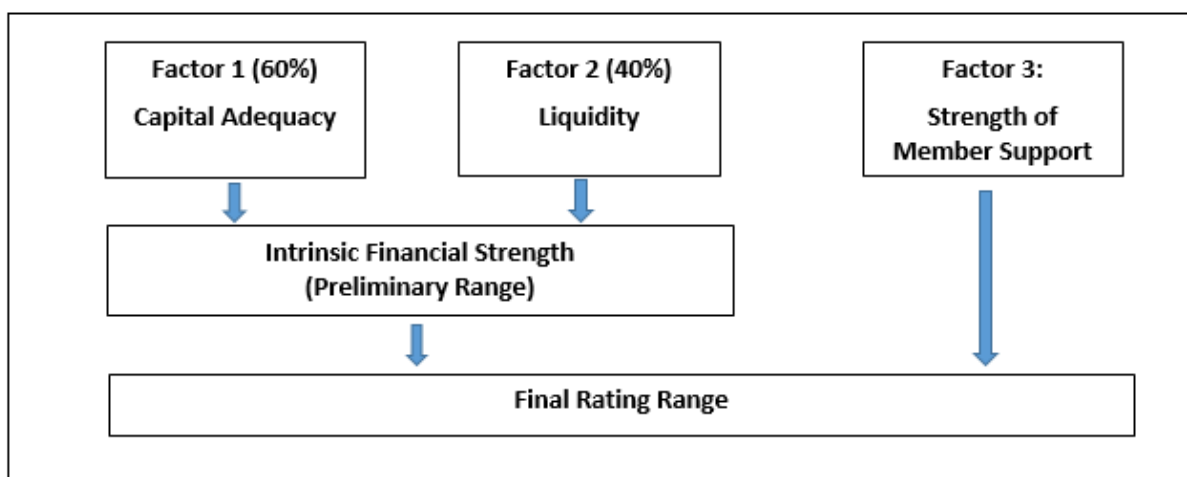
The methodology utilized by Moody's, the second-largest of the Big Three agencies, to rate MDBs covers most of the same general areas as the other two methodologies, but with substantial differences in how sub-factors feed into the final rating, in the level of qualitative assessment and in its perceived impact on MDB operations. MDB staff report that Moody's has indicated to them that it is gearing up for an overhaul of its current methodology, although the revision process is expected to last at least until 2019 and possibly into 2020. The agency itself has not confirmed publicly that such an MDB methodology revision is planned.

The major MDBs have found Moody's to be the least problematic of the three rating agencies in terms of concerns that movement in certain financial ratios could lead to a downgrade. Rather, Moody's is perceived to take a more qualitative approach that uses financial ratios as a starting point for their analysis, but permits analysts and rating committees more flexibility to take judgments based on their views of MDB characteristics that are not necessarily quantifiable. MDBs view Moody's as being the most interested in their broader development mandate and strategy compared to the other two agencies. While this is generally considered a positive attribute of Moody's, it also makes it difficult for the MDBs to get a sense of operational headroom before Moody's might consider a downgrade.

Because Moody's is not perceived as a significant limitation on any of the major MDBs considered here, this sub-section will limit itself to laying out the general approach used by Moody's and highlight a few key points unique to the agency's approach, for comparative purposes with the other agencies.

Similar to the other agencies, Moody's evaluates MDBs in a two-step approach (Moody's, 2017a), first assessing an MDB's "intrinsic" financial strength based on two major factors—capital adequacy and liquidity—and then adding on shareholder support to arrive at the final issuer rating (Figure 8). All the major MDBs are considered to have a "very high" intrinsic assessment by Moody's (Table 7). The criteria for how Moody's selects among the three possible rating notches within the "very high" category is opaque, but Moody's indicates that comparisons with other MDBs is an important factor. Unlike the other agencies, Moody's does not specify the initial intrinsic rating in its ratings reports. In the view of some MDB staff, this is a preferable approach, as they are concerned that some investors may charge a premium to MDBs that are sub-AAA in S&P stand-alone or Fitch's intrinsic ratings.

Figure 8. Moody’s MDB Methodology Overview



Source: Moody’s, 2017a.

Moody’s uses a “scorecard” approach for the main part of its MDB evaluation, in which it assigns scores from 1-100 for all sub-factors, which are summed according to specified weights and then adjusted to arrive at the final score for the capital adequacy and liquidity factors (see Annex Table 4 for full scorecard). These are in turn summed using 60% and 40% weights respectively, generating a final intrinsic score between 1 and 100, which defines the five-step category assessment in the left-hand column of Table 7 below.

Table 7. Moody’s MDB Intrinsic Rating and Shareholder Support Methodology

Intrinsic Financial Strength		Strength of Member Support	
Assessment	Preliminary Rating Range	Assessment	Notch Adjustment
Very High	Aaa-Aa2	Very High	+3
High	Aa2-A1	High	+2
Medium	A2-Baa1	Medium	+1
Low	Baa2-Ba1	Low	0
Very Low	B1-C	Very Low	0

Source: Moody’s, 2017a.

As is the case with Fitch, all the major MDBs receive a top rating for the liquidity factor with little difficulty, in part because it has some path-dependent aspects.²² Capital adequacy assessments currently range from very high (ADB, EBRD, IBRD, IDB and IFC) to high (AfDB). Although AfDB has a relatively high ratio for the main capital adequacy ratio (Table 8), it is hampered by non-performing loans higher than its public-sector peers, a low average borrower rating, and relatively high leverage. The predominantly private-sector portfolios of EBRD and IFC also have high NPL levels, but this is offset by higher capital adequacy and lower leverage.

²² Half of the factor is accounted for by an issuer’s existing market access, which for all Aaa-rated institutions is by definition excellent.

Table 8. MDB Capital Adequacy Indicators, Moody's

	Asset Coverage Ratio*	Non-performing Loan as % of Total Loans
ADB	48.4%	0.3%
AfDB	40.9%	3.6%
EBRD	54%	5.5%
IBRD	22%	0.3%
IDB	36.8%	0.3%
IFC	66.7%	4.4%

Source: Moody's, 2017b, c, d, e, f, g.

* Defined as shareholder equity divided by development exposures plus risk-weighted treasury assets.

The way that Moody's takes into account portfolio concentration and PCT are more in line with MDBs' own views compared to S&P's more conservative approach. For portfolio concentration, Moody's combines a ratio of the top 10 borrowers to the total portfolio with a Herfindahl-Hirschman Index score to measure concentrations in geographic region and economic sector.²³ This enters as an adjustment to the capital adequacy score, with a potential maximum impact of 10 points out of 100 (but usually lower). This is far less than the impact of S&P's single-name concentration penalty. Moody's has indicated that it views the concentrated nature of MDBs' portfolios as inherent in their institutional design, particularly in the case of MDBs with a regional focus, and they should hence not be penalized for that.

In the case of PCT, Moody's takes a similar approach to Fitch by simply accounting for the loan repayment track record of each MDB. This enters primarily as the current NPL ratio, which forms part of the initial capital adequacy score. By doing so, Moody's and Fitch avoid the need to construct special formulas (with problematic assumptions) required in S&P's RAC methodology. As Moody's methodology puts it, "Rather than make possibly inaccurate assumptions regarding the benefits of PCS on asset quality, we choose to include the NPL indicator, which captures the reality of the benefit on asset quality" (Moody's, 2017a, p. 11). Should an MDB have a track record of high NPLs, this can also enter as a penalty as one of the adjustments to the final capital adequacy score.

All the major MDBs are classified as having "very high" intrinsic strength by Moody's, without giving a specific notch rating. Thus it is impossible to determine which MDBs require shareholder support to arrive at a Aaa final issuer rating. Should an MDB require this support, Moody's awards an uplift of 0 to 3 notches, depending on how the agency views an MDB's i) contractual support (i.e., callable capital) and ii) likelihood of extraordinary support from shareholders in the event of need. MDB callable capital is accounted based on a "haircut" approach, with all callable capital above investment grade included, weighted by Moody's rating of the sovereign shareholder contributing the callable capital. Based on a ratio of callable capital to MDB debt, an MDB is awarded a score that helps determine rating uplift. This approach is conceptually similar to Fitch, but more generous in that all major MDBs (with the exception of EBRD) are comfortably in the top category, and could receive a three-notch uplift if required.

²³ For public sector-focused MDBs, Moody's includes only the country and regional concentration, and ignores economic sector.

Conclusions and Policy Options

If multilateral development banks (MDBs) are to fulfill the goals of their shareholders to ramp up support for badly-needed infrastructure and help achieve the 2030 Sustainable Development Goals, a strong financial foundation is essential. Even as MDBs shift toward a model based on working more with private sector actors and leveraging limited resources, they must still have substantial financial capacity if they are to be effective and relevant—especially on the scale necessary to fill huge physical and social infrastructure gaps in the developing world.

A key aspect of MDB financial strength is their ability to access international capital markets at attractive terms. This is predicated on the confidence of bond investors, who in turn rely heavily on the views of the Big Three credit rating agencies of Standard and Poor's (S&P), Moody's and Fitch. All the six major MDBs analyzed in this report receive a top-notch rating from all three agencies, giving them privileged ability to issue debt at among the best terms of any issuer in the world. Shareholders have mandated MDBs to operate in such a way as to maintain their top rating.

Doing so is becoming increasingly complex. Rating agency criteria for MDBs have evolved substantially in recent years. In the face of no regulatory benchmarks and no widely agreed signposts as to how to proceed, rating agencies have taken different (and frequently changing) approaches to evaluating the unique characteristics of MDBs, in some cases using highly conservative formulas and in other cases not revealing with clarity how their assessments are undertaken. As a result, MDBs are being pulled in different directions as they try to meet the requirements for a top-notch rating by all three agencies, and face substantial uncertainty on how to assess potential lending headroom according to agency criteria compared to their own internal models.

No obvious solution is available to fully address this problem. Rating agencies do face regulatory oversight, but they are private companies and their methodologies cannot be dictated by any public authority. Nonetheless MDB management and shareholders do have a number of options at their disposal that can help alleviate the operational restrictions and uncertainty caused by divergent and opaque rating agency criteria.

Coordinate actions by MDBs related to rating agencies and capital adequacy

A first overarching policy recommendation is for the major MDBs to deepen their incipient coordination with each other on issues related to capital adequacy and rating agencies. The risk teams of the major MDBs have begun meeting on a regular basis to exchange ideas and develop joint approaches to the ratings agencies, and three MDBs have coordinated a synthetic portfolio exchange to mitigate the impact of S&P's concentration risk penalty on their ratings. These are highly positive developments, but have thus far been limited. MDB staff face conflicting incentives: seeing the benefits of working together, but primarily interested in maintaining their own MDB's relationship with ratings agencies and capital market investors.

Much more powerful would be if MDBs take a more systemic approach to maximize the capacity of the major MDBs *collectively* to achieve global development goals. This requires far-sighted leadership on the part of MDB staff—particularly the financially stronger MDBs, which have

more influence in the markets—and a concerted, collective push by major shareholders. Such a shift does not mean MDBs give up their individual mandates, but rather take collective action in specific, clearly-defined areas that improve their capacity to achieve common goals defined by their shareholders.

One step would be to work toward a more homogenous and transparent approach to internal capital adequacy models among the major MDBs (possibly in conjunction with an external review, as per next recommendation), which would provide more clarity to both market participants and shareholders on relative risk appetites and capital needs. While each MDB must design internal capital adequacy models based on its particular operational context, a degree of uniformity on approaches to key concepts in MDB finances and greater public transparency would be helpful.

Commission a credible external agency to review MDB capital adequacy.

A major cause of divergent rating agency approaches to MDBs is the difficulty agencies have in knowing how to evaluate attributes unique to MDBs, like their shareholding structure, development mandate, concentrated portfolio and preferred creditor status. As MDBs face no regulatory oversight (nor should they), no credible external assessments exist for rating agencies to use as inputs to their methodology. An external review of MDB capital adequacy by a respected authority with legitimacy in the international community and among financial markets, like the Basel Committee on Banking Supervision or Bank for International Settlements (BIS), would provide a useful yardstick to promote a convergence in rating agency methodologies.

A second option could be for the major MDBs to collectively commission a highly-respected university finance department to undertake the study. The advantage of a university study would be to alleviate concerns that BIS or the Basel Committee might be overly risk-averse, but the disadvantage is that such a study would carry less credibility with financial markets and have less influence in promoting a convergence in rating agency methodologies. The use of a consultancy firm to evaluate capital adequacy—as the World Bank recently did—is a reasonable approach for internal purposes, but will not influence the broader debate on these issues across the MDB system.

Analysts at all three rating agencies said they would welcome an external review and would take it into account in MDB assessments. As one analyst said, “Having an impartial and highly-respected third party look at these risks would be helpful. We don’t want to be a regulator.” MDB staff themselves have resisted such a move, fearing the creation of an external regulator. These fears could be alleviated by restricting the review to analyzing MDB finances on a conceptual basis, and not making any judgments on the current capital adequacy of any individual MDB. The terms of reference for any such review would need to be clearly spelled out to include a detailed analysis of the complex, unique issues that make MDBs so difficult for ratings agencies to analyze, in particular callable capital, preferred creditor status and structural portfolio concentration. An external review would be most useful if commissioned collectively by the major MDBs.

Incorporate a portion of highly-rated callable capital into MDB capital adequacy calculations

It is unfortunate that in a time of rapidly increasing demands on MDBs and scarce capital, MDBs are not taking into account any of their existing callable capital—a guarantee of hundreds of billions of dollars committed under international treaty obligation—in assessing the strength of their shareholder equity. Callable capital was specifically designed to give MDBs greater financial security, but currently is of little operational value. S&P—the most influential of the ratings agencies—has explicitly stated that substantial MDB lending headroom is available based on callable capital from AAA-rated shareholders, and the other two agencies also give credit for callable capital in their methodologies. However, MDB internal capital adequacy models do not incorporate callable capital.

Utilizing a portion of highly-rated callable capital in a conservative fashion as part of MDB capital adequacy calculations, along the lines of S&P's methodology, would in no way threaten the extraordinary strong financial stability of MDBs, and would not meaningfully increase the vanishingly remote chance of callable capital actually being called. If done in a coordinated fashion among all the major MDBs, with the explicit support of major shareholders and with extensive prior discussions with the other rating agencies, it would be unlikely to lead to a downgrade by the other two agencies. Action by shareholders to clarify the currently murky procedure for a capital call would help give rating agencies and bond buyers greater confidence in such a move.

Evaluate the costs and benefits of sub-AAA rating, and share the analysis with shareholders

This paper is not recommending that any major MDBs target going sub-AAA. Rather, MDBs collectively should thoroughly analyze the costs and benefits, and communicate that analysis to shareholders in detail so they can make a more fully informed decision on the policy of maintaining AAA. If rating agency criteria is such that keeping a AAA substantially undermines the ability of an MDB to undertake its development mission, that policy should be reconsidered. A lower bond rating may mean higher funding costs (as well as greater liquidity needs and a changing investor profile), but to what degree is not obvious. As well, if the downgrade were only by Fitch, the smallest of the ratings agencies, but not S&P or Moody's, the impact may be even less.

A lower bond rating can allow the balance sheet to grow based on the same shareholder capital. Settimo (2017) estimates that based on S&P's criteria, lowering the target to AA+ from AAA would increase lending headroom by just under US\$1 trillion for the six major MDBs. While this is just a back-of-envelope calculation, it does give a sense of the scale involved. MDBs should dispassionately analyze these trade-offs. If an MDB can achieve more with a AA+ or AA rating, this should be explored. Such a move may not make sense for the World Bank's IBRD, but could be more operationally useful for other MDBs. The fact that an MDB like the Andean Development Corporation (CAF) is able to operate successfully in a middle-income region like Latin America with a AA- bond rating suggests that a AAA bond rating may not be essential to achieve development goals, at least for some MDBs.

Increase coordination on balance sheet optimization efforts

MDBs have begun exploring creative options for efficiently maximizing their balance sheets. These efforts—actively supported by the G20²⁴—are highly commendable, as MDBs must move to a mentality of squeezing the most operational capacity out of scarce shareholder capital. Innovations by individual MDBs are useful and worth continuing, but coordinated actions among the MDBs hold much greater potential. The exposure exchange arrangement between IBRD, AfDB and IDB in 2016—which diminished S&P’s concentration penalty for IDB and AfDB—is an excellent example of what cooperation can achieve.

The prospects for further exposure exchange operations among the major MDBs is limited in the coming years, due to the structure of MDB portfolios and need to restrict the amount of individual country portfolios exchanged.²⁵ However, possibility can be explored with other regional or sub-regional MDBs, which also face portfolio concentration and in some cases have substantial portfolios and overlapping shareholding. Potential partner institutions include: Andean Development Corporation, Black Sea Trade and Development Bank, Caribbean Development Bank, Central American Bank for Economic Integration, Islamic Development Bank, Trade and Development Bank, West African Development Bank. The recently-created Asian Infrastructure Investment Bank and New Development Bank may also be potential portfolio exchange counterparts, when their portfolios grow to a sufficient size.

A number of other options for coordinated balance sheet activity are worth exploring. A variety of risk transfer techniques exist for private commercial institutions, and are currently being analyzed or, in some cases, implemented, by MDB and shareholders. These include:

- Purchasing insurance from a private provider for a portion of the portfolio.
- Seeking official guarantees from bilateral agencies to remove the risk of individual loans from an MDB portfolio, or to cover a first-loss tranche for a larger share of the portfolio.
- Packaging loans as asset-backed securities that can be sold off the balance sheet to external investors, with official support for subsidized public sector loans or without any support for market-priced private sector loans.

The move toward securitization—which is focused especially on infrastructure loans as part of the agenda to convert infrastructure into an asset class attractive to institutional investors—would especially benefit from coordination among MDBs. The World Bank is currently exploring a plan to securitize public sector loans, and actively soliciting support from bilaterals. Undertaking such explorations together with a group of other MDBs to design a joint proposal to standardize terms, processes and approaches to donors might be more advantageous to global development goals. Such a move would have potential to mitigate capital constraints across all the major MDBs and at the same time give a boost to the market for developing country infrastructure as an asset class.

²⁴ See G20 (2015) and most recently G20 (2017).

²⁵ MDB shareholders and management correctly wish to limit the amount of their shareholders’ loans that are exchanged (even synthetically) with another institution, due to the possibility that this could weaken the relationship between borrowers and the MDB, with implications for preferred creditor status. One option under discussion is to involve the European Investment Bank—with a huge outstanding loan portfolio and numerous overlapping shareholders with the other major MDBs—in a future exposure exchange.

Consider new measures to build MDB equity

In addition to potential increases in shareholder capital, MDBs should consider other techniques to build equity. One obvious—though politically complex—option is to reduce allocations out of net income diverted to shareholder causes (particularly at IBRD, IFC and AfDB), and build reserves. Non-borrowing shareholders have become accustomed to using net income to fund various causes, rather than paying out of their own budgets. World Bank shareholders have transferred over US\$23 billion in IBRD net income through FY2017—more than four times the level of IBRD’s previous (2010) capital increase. The ongoing annual allocation of net income should cease or at least be reduced, and these resources should instead be directed to reserves to expand lending headroom. Shareholders should use internally generated resources to strengthen their own cooperative, as originally intended, and not siphon them off for causes benefiting only a sub-set of member countries.

Another option to build equity could be to issue subordinated debt instruments, which can strengthen MDB capital adequacy, although the precise level is not clear and would need to be verified with credit rating agencies before proceeding. Institutional investors such as pension funds, sovereign wealth funds, or central banks are the likeliest targets, since investors with a link to a highly-rated sovereign are the most likely to provide greater equity benefits to an MDB.²⁶ The downsides of such an instrument compared to normal paid-in shareholder capital are that: i) it would require paying out a return to the purchaser of the instrument; ii) would not give as much benefit to MDB equity as paid-in capital; and iii) would not come with any voting rights in MDB policy decisions.

A further innovative option—already used at some sub-regional MDBs, such as Africa’s Trade and Development Bank—is to incorporate sovereign-linked institutional investors as subordinated shareholders. Such a move might be politically difficult at the major MDBs, but need not imply any meaningful dilution of sovereign authority. However, subordinated shareholder investors would need to receive a financial dividend, which would put pressure on net income.

²⁶ S&P’s proposed methodology, which has yet to be confirmed, suggests that it would only offer equity benefits on subordinated debt purchased by an institution linked to sovereigns, and not to a private institutional investor.

References

- Bhattacharya, A., J. Meltzer, J. Oppenheim, Z. Qureshi and N. Stern. 2016. *Delivery on Sustainable Infrastructure for Better Development and Better Climate*. December 2016. Washington DC: Brookings.
- European Securities and Markets Authority. 2017. “Report on CRA Market Share Calculation.” 20 December 2017. Paris: EMSA.
- Fitch. 2017a. *Supranationals Rating Criteria*. May 2017. New York: Fitch Ratings Inc.
- Fitch. 2017b. “African Development Bank.” 8 December 2017. New York: Fitch Ratings Inc.
- Fitch. 2017c. “Asian Development Bank.” 15 August 2017. New York: Fitch Ratings Inc.
- Fitch. 2017d. “European Bank for Reconstruction and Development.” 11 January 2017. New York: Fitch Ratings Inc.
- Fitch. 2010. *Rating Multilateral Development Banks and Other Supranationals*. 18 March 2010. New York: Fitch Ratings Inc.
- G20. 2015. “Multilateral Development Banks Action Plan to Optimize Balance Sheets.” Available at: <http://www.g20.utoronto.ca/2015/Multilateral-Development-Banks-Action-Plan-to-Optimize-Balance-Sheets.pdf>.
- G20. 2017. “Second Report on the MDB Action Plan to Optimize Balance Sheets.” June 2017.
- Global Commission on Climate and Economy. 2016. *The 2016 New Climate Economy Report*.
- Humphrey, C. 2015. “Are Credit Rating Agencies Limiting the Operational Capacity of Multilateral Development Banks?” 30 October 2015. Paper Commissioned for the Inter-Governmental Group of 24. Washington DC: G24.
- Humphrey, C. 2017. “He Who Pays the Piper Calls the Tune: Credit Rating Agencies and Multilateral Development Banks.” *Review of International Organizations* 12: 281-306.
- Kapur, D., J. Lewis and R. Webb. 1997. *The World Bank: It's First Half Century*. Washington, DC: Brookings Institution.
- McKinsey Global Institute. 2016. *Bridging Global Infrastructure Gaps*. June 2016. Accessed at <https://www.mckinsey.com/~media/McKinsey/Industries/Capital%20Projects%20and%20Infrastructure/Our%20Insights/Bridging%20global%20infrastructure%20gaps/Bridging-Global-Infrastructure-Gaps-Full-report-June-2016.ashx> on 30 January 2018.
- Moody's. 2017a. *Multilateral Development Banks and Other Supranational Entities*. 29 March 2017. New York: Moody's Investor Service.
- Moody's. 2017b. “African Development Bank.” 16 October 2017. New York: Moody's Investor Service.
- Moody's. 2017c. “Asian Development Bank.” 23 August 2017. New York: Moody's Investor Service.

Moody's. 2017d. "European Bank for Reconstruction and Development." 27 September 2017. New York: Moody's Investor Service.

Moody's. 2017e. "Inter-American Development Bank." 21 September 2017. New York: Moody's Investor Service.

Moody's. 2017f. "International Bank for Reconstruction and Development." 10 November 2017. New York: Moody's Investor Service.

Moody's. 2017g. "International Finance Corporation." 29 November 2017. New York: Moody's Investor Service.

Multilateral Development Banks. 2017. "Summary High Level Comments." Unpublished letter from ADB, AfDB, AIIB, Caribbean Development Bank, Andean Development Corporation, Council of Europe Development Bank, EIB, EBRD, IDB, Inter-American Investment Corporation, IBRD, IDA, IFC, Islamic Development Bank and Nordic Development Bank. 30 November 2017.

Perraudin, W., A. Powell and P. Yang. 2016. "Multilateral Development Bank Ratings and Preferred Creditor Status." IDB Working Paper Series 697, July 2016. Department of Research and Chief Economist. Washington DC: IDB.

Securities and Exchange Commission. 2017. "Annual Report on Nationally Recognized Statistical Rating Organizations." December 2017. Washington DC: SEC.

Settimo, R. 2017. "Towards a More Efficient Use of Multilateral Development Banks' Capital." Occasional Paper Series 393, September 2017. Rome: Bank of Italy.

Standard and Poor's. 2017a. *Supranationals Special Edition, 2017*. October 2017. New York: S&P Global Ratings.

Standard and Poor's. 2017b. "Key Considerations for Supranationals' Lending Capacity and Their Current Capital Endowments." 18 May 2017. New York: S&P Global Ratings.

Standard and Poor's. 2017c. "Request for Comment: Multilateral Lending Institutions and Other Supranational Institutions Rating Methodology." 11 October 2017. New York: S&P Global Ratings.

Standard and Poor's. 2017d. "Risk-Adjusted Capital Framework Methodology." 21 July 2017. New York: S&P Global Ratings.

Standard and Poor's. 2016. "How Much Can Multilateral Institutions Up the Ante?" 12 April 2016. New York: S&P Global Ratings.

World Bank. 2017. "Bonds for Sustainable Development." World Bank Investor Presentation. 2017. Washington DC: World Bank.

Interviews

ADB

Michael Kjellin, Director, Policy and Systems Division, Office of Risk Management, 8 December 2017

AfDB

Tim Turner, Chief Risk Officer, 6 December 2017

Riadh Belhaj, Group Credit Risk Department, 6 December 2017

IBRD

Lakshmi Shyam-Sunder, Vice President and World Bank Group Chief Risk Officer, 4 December 2017

IDB

Gustavo de Rosa, Chief Financial Officer, 7 December 2017

IFC

Mohamed Gouled, Vice President, Risk and Financial Sustainability, 11 December 2017

David Cummings, Capital Management and Risk, 11 December 2017

Moody's Investor Service

Kathrin Muehlbronner, Senior Vice President, Sovereign Risk Group, 19 January 2018

Yves Lemay, Managing Director, Sovereign Risk Group, 19 January 2018

Standard and Poor's

Alexander Ekbohm, Global Lead, Supranationals and Multilateral Lending Institutions
17 January 2018

Fitch Ratings

Eric Paget-Blanc, Senior Director, 24 January 2018

ANNEXES

Table A1. S&P Matrix for Stand-Alone Credit Profile

Source:

Business Profile	Financial Profile						
	Extremely strong	Very strong	Strong	Adequate	Moderate	Weak	Very weak
Extremely strong	aaa	aaa/aa+	aa+/aa	aa/aa-	a+/a	a-/bbb+	bbb/bbb-
Very strong	aaa/aa+	aa+/aa	aa/aa-	a+/a	a/a-	bbb+/bbb	bb+/bb
Strong	aa+/aa	aa/aa-	a+/a	a/a-	bbb+/bbb	bbb/bbb-	bb/bb-
Adequate	aa/aa-	a+/a	a/a-	bbb+/bbb	bbb/bbb-	bb+/bb	b+/b
Moderate	a+/a	a/a-	bbb+/bbb	bbb/bbb-	bb+/bb	bb-/b+	b/b-
Weak	a-/bbb+	bbb+/bbb	bbb/bbb-	bb+/bb	bb/bb-	b+/b/b-	ccc+/ccc/ccc-
Very weak	bbb+/bbb	bbb/bbb-	bb+/bb	bb/bb-	b+/b/b-	ccc+/ccc/ccc-	cc

Source: S&P, 2017a.

Table A2. S&P Matrix for Business Profile

Governance/ management expertise	Policy importance				
	Very strong	Strong	Adequate	Moderate	Weak
Strong	Extremely strong	Very strong	Strong	Adequate	Moderate
Satisfactory	Very strong	Strong	Adequate	Moderate	Weak
Fair	Strong	Adequate	Moderate	Weak	Very weak
Weak	Adequate	Moderate	Weak	Very weak	Very weak

Source: S&P, 2017a.

Table A3. S&P Matrix for Financial Profile

Funding and liquidity	Capital adequacy						
	Extremely strong	Very strong	Strong	Adequate	Moderate	Weak	Very weak
Very strong	Extremely strong	Extremely strong	Very strong	Strong	Adequate	Moderate	Weak
Strong	Extremely strong	Very strong	Strong	Adequate	Moderate	Weak	Very weak
Adequate	Very strong	Strong	Adequate	Moderate	Weak	Very weak	Very weak
Moderate	Strong	Adequate	Moderate	Weak	Very weak	Very weak	Very weak
Weak	Moderate	Moderate	Weak	Very weak	Very weak	Very weak	Very weak
Very weak	Weak	Weak	Very weak	Very weak	Very weak	Very weak	Very weak

Source: S&P, 2017a.

Table A4. S&P Risk-Adjusted Capital Ratio (Capital Adequacy) Assessment

Assessment Category	RAC Value
Extremely Strong	Above 23%
Very Strong	Above 15% and up to 23%
Strong	Above 10% and up to 15%
Adequate	Above 7% and up to 10%
Moderate	Above 5% and up to 7%
Weak	Above 3% and up to 5%
Very Weak	3% and below

Source: S&P, 2017a.

Table A5. Moody's MDB Scorecard Overview

Rating Factor	Sub-Factor	Sub-Factor Weight	Indicator
Factor 1: Capital Adequacy	Capital Position	60%	Asset Coverage Ratio
			Weighted Average Borrower Rating
	Leverage	20%	Debt as % of Equity
	Asset Performance	20%	NPLs as % of Loans
	Adjustment Factors	-4 to +3 scores	Portfolio Concentration
			Operating Environment
			Profitability
			History of High NPLs
Factor 2: Liquidity	Position	50%	Short-Term Debt + Currently-maturing Long-Term Debt as % of Liquid Assets
	Funding	50%	Bond-Implied Rating Weighted Average Cost of Loan Debt
Factor 3: Strength of Member Support	Contractual Support	50%	Debt as % of Discounted Callable Capital
	Extraordinary Support	50%	Weighted Median Shareholder Rating
			Propensity/Priority of Support
	Adjustment Factors	-2 to +1 scores	Linkages Among Members
			Correlation of Members and Assets
Member Concentration			
			Joint-and-Severals Support

Source: Moody's 2017a.