

RATING METHODOLOGY

Incorporation of Joint-Default Analysis into Moody's Bank Ratings: Global Methodology

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Introduction

This rating methodology updates our approach for incorporating expectations related to various forms of external support into our ratings of banks. In our March 2007 rating methodology "*Incorporation of Joint-Default Analysis into Moody's Bank Ratings: A Refined Methodology*" we set out a framework - joint-default analysis (JDA) - for adjusting bank financial strength ratings to reflect various forms of external support. Throughout the financial crisis, governments have extended extraordinary amounts of support to systemically important banks. This support stabilized their credit quality, thereby limiting ratings migration to the benefit of most bank creditors. Although the crisis largely reaffirmed Moody's views on external support, it has also caused us to refine some of the assumptions underlying our assessment of the inevitable and growing uncertainties regarding the support framework for banks.

This rating methodology is largely unchanged from the March 2007 document. In the current update we have changed the rating symbols we use to communicate Baseline Credit Assessments, which express Moody's opinions on banks' stand-alone financial strength and default risk, absent extraordinary support which may be provided by governmental entities or affiliates. The new scale replaces the use of our traditional long-term rating scale, which we now reserve for expressing Moody's views on the relative risk of default and loss, inclusive of possible extraordinary third-party support.¹ Baseline Credit Assessments are now expressed using a strictly a lower-case alpha-numeric scale (i.e. aaa, aa1, aa2, ...caa3). The only other substantive revisions are updates which codify changes of practice that we announced and implemented at earlier stages of the financial crisis in two particular areas of the methodology, as described below:

» Previously our assumption for systemic support was based on the central bank's capacity to provide support, as measured by an indicator called the local currency Deposit Ceiling (LCDC), which is the highest rating that can be assigned to the local currency deposits of a bank or other deposit taking institution domiciled within that rated jurisdiction. However, the financial crisis has illustrated the propensity for idiosyncratic problems to develop into systemic crises, and for liquidity shocks to develop into solvency problems, given the interconnectedness of the financial sector and the confidence sensitivity of banks. In such circumstances, the capacity of the authorities to provide support converges with the government's own financial capacity as reflected in its debt rating. This methodology explains how we use the government's debt rating as an indicator of its ability to support banks.

¹ The introduction of new rating symbols is also consistent with Section 938 of the Dodd-Frank Wall Street and Consumer Protection Act – the US financial reform bill. Based upon rule-making by the Securities and Exchange Commission, nationally recognized statistical rating organizations are prohibited from having multiple definitions for the same rating symbol.

- » In most cases, we have removed systemic and regional support from bank hybrid ratings and, in many cases, from subordinated debt ratings. Instead, these ratings are linked to the stand-alone intrinsic strength of the bank as expressed through our Bank Financial Strength Rating. This is in contrast to our previous practice of anchoring from the bank's senior unsecured rating or Bank Debt Rating, which incorporates systemic and other forms of external support.

To recap, JDA operates on the principle that the risk of default (and therefore, loss) for certain obligations depends upon the performance of *both the primary obligor and another entity (or entities) that may provide support to the primary obligor.*²

The chief benefit offered by JDA is a consistent, transparent approach to the incorporation of (typically uncertain) non-contractual external support. That said, Moody's bank deposit ratings will continue to be determined through judgment, not through models. Our intention is to be transparent about the judgments we are making and to be consistent in their impact on rating outcomes.

Moody's JDA framework for banks evaluates potential support in a *sequential* process, or "building block" approach. The intention of the Sequential Support Model is to replicate the likely sequence in which external support for a bank would be forthcoming. Each support provider is assessed for its *capacity* and *willingness* to support the bank. The first is based on the supporter's own rating. The second is based on Moody's opinion of the probability that support will be forthcoming when needed.

Rationale for JDA and Refinement of Methodology

Any assessment of expected loss on debt issued by financial institutions must take into account the potential for third parties to provide support to a financial institution to enable it to avoid default. For example, a default study conducted in 2005 found that financial institutions historically had similar, if not safer, credit risk profiles to similarly rated corporate issuers. Among issuers rated single A and above (roughly 75% of all financial institutions), the default rates of financial institutions and corporate issuers were very similar between 1983 and 2004. For issuers rated Baa and below, however, default rates were lower for financial institutions than for similarly rated corporate issuers.³ The main reason for the difference in performance was the incidence of intervention by regulatory authorities, whether through provision of liquidity or capital, through regulatory/accounting forbearance or other support operations, in order to minimize the systemic consequences of a large bank failure.

The crisis has provided many further examples of third party support for banks. While bank default rates have increased significantly over the crisis, the increase would have been far higher were it not for the support extended, on many occasions, by central, regional and local governments as well as by parents and co-operative groups. While the future support framework for banks is increasingly uncertain, experience during the crisis has validated the assumption that many banks have some reasonable expectation of external support, the effect of which is to reduce any loss borne by creditors.

Accordingly, in order to promote comparability between, on the one hand, Moody's deposit ratings and, on the other, its ratings of bonds issued by non-financial corporates which would typically have no expectation of support, Moody's practice is to raise deposit ratings to reflect the expected level of support. JDA provides a transparent framework to do this.

² For an explanation of the principles of JDA, please see Moody's Special Comment "[The Incorporation of Joint-Default Analysis into Moody's Corporate, Financial and Government Rating Methodologies](#)" February 2005.

³ Moody's Special Comment "[Defaults, Losses and Rating Transitions on Bonds Issued by Financial Institutions: 1983-2004](#)" December 2005. Also see Moody's Special Comment "[Defaults and Recoveries for Financial Institution Debt Issuers, 1983-2010](#)" February 2011 for more recent data.

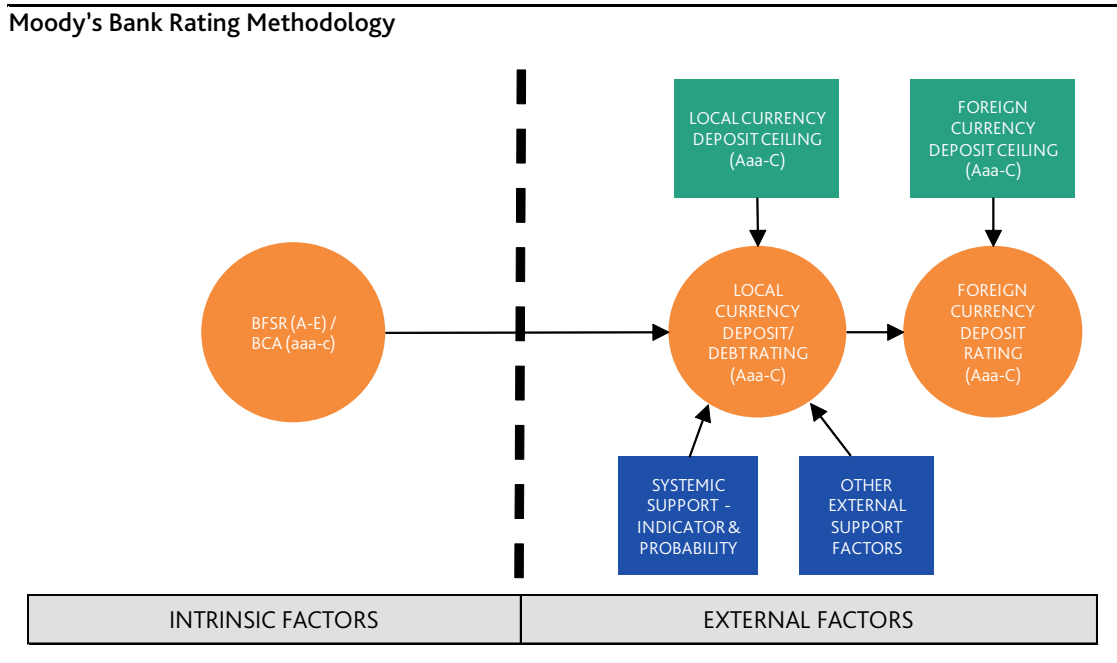
However, the crisis has also provided insights into the limitations on the support environment, both now and in the future. For example:

- » The crisis has caused policy makers actively to explore ways of reducing the need to commit taxpayers' funds to support banks in future, including through the development of resolution frameworks and, potentially, new forms of debt instrument which can more readily bear losses;
- » The crisis has also exposed the speed with which an idiosyncratic problem can become a systemic financial crisis, and the limits on the public sector's ability to provide financial support to contain systemic crises without damaging its own balance sheet;
- » And not all classes of debt have received the same levels of support: there have been many more instances of losses being incurred on various junior instruments than on senior debt,

This update to earlier reports on the JDA framework explains some changes to the way in which the framework is applied in order to reflect those insights. Their overall effect is to restrict external support estimates and to limit lift from support, aligning bank deposit ratings more closely with Moody's assessment of their intrinsic financial strength.

Moody's Bank Rating Methodology

The schematics below summarize the broad analytic concepts underpinning the bank rating process by highlighting the relationship between the bank financial strength rating (or its corresponding baseline credit assessment), the supported local currency deposit rating, and the foreign currency deposit rating.



In analyzing the creditworthiness of banks, it is useful to separate intrinsic risk factors from external risk factors. Since 1995, the starting point for Moody's bank rating methodology has been an assessment of a bank's intrinsic financial strength, as captured by a Bank Financial Strength Rating (BFSR) and mapped to the baseline credit assessment (BCA).

A BFSR measures the risk that a bank will require external support. The BFSR is informed by fundamental analysis and consequently reflects both financial and qualitative measures. The BFSR forms the basis for the bank's deposit and debt ratings, which further incorporate both external support and risk elements. Anticipated external support may lift deposit and debt ratings and sovereign-related risk may cap them.

Assigning Local and Foreign Currency Deposit Ratings

BFSR / BCA	+ Outside Support = LC Deposit Rating	+ Sovereign Ceiling = Constrained FC Deposit Rating
A / aaa	Aaa	Aaa
A- / aa1	Aa1	Aa1
B+ / aa2	Aa2	Aa2
B / aa3	Aa3	Aa3
B- / a1	A1	A1
C+ / a2	A2	A2
C / a3	A3	A3
C- / baa1	Baa1	Baa1

In the schematic, a bank with a BFSR of C+ is highlighted. The C+ BFSR translates into a Baseline Credit Assessment of A2. This bank also benefits from external support, raising its local currency deposit rating to A1. However, this bank operates in a country with a sovereign foreign currency ceiling of Baa1, which constrains the bank's foreign currency deposit rating at Baa1.

Assigning Local and Foreign Currency Deposit Ratings

JDA provides a methodology for incorporating external sources of credit strength (as well as credit interference) into issuer and obligation ratings. In many applications, there is an entity or obligation with an underlying rating and a support provider. The probability that support would be extended when needed is also part of the framework. This can range from 100% (via an irrevocable guarantee⁴) to 0% (the expectation of no support).

By explicitly capturing estimates of the ability and willingness of various external entities to provide support to banks, the JDA methodology is intended to result in consistent deposit and debt ratings. The impact on foreign currency deposit ratings and the ratings on nondeposit obligations may vary, depending upon a number of other factors, including the risk of a foreign currency moratorium.

⁴ Refer to Special Comment: "[Moody's Identifies Core Principles of Guarantees for Credit Substitution](#)" November 2010.

The JDA Sequential Support Framework

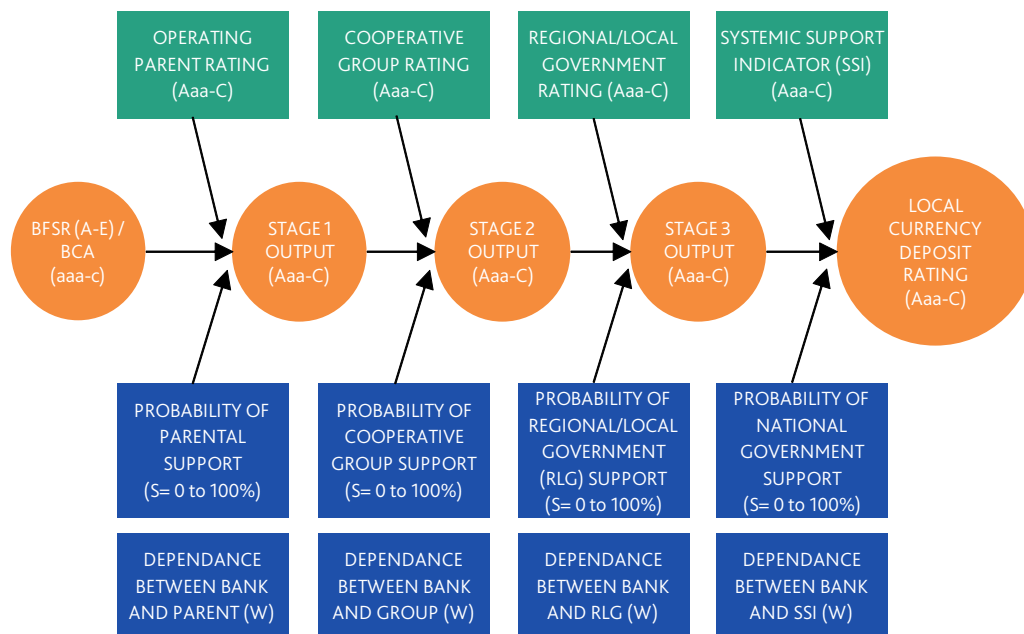
Moody's JDA sequential support framework is intended to apply to all major forms of potential external support for banks. We have identified four sources of potential external support for banks, each representing one step in the sequential JDA support framework:

1. Support from a parent (operating company or family group),
2. Support from a cooperative or mutualist group,
3. Support from a regional or local government, and
4. Systemic (i.e. national government and/or central bank) support.

Rather than attempt to model multiple supporters with potentially different support probabilities and default correlations, we have designed a JDA framework that evaluates support in a sequential process, or "building block" approach. The intention is to replicate the likely sequence in which external support for a bank might be forthcoming. Each stage of support has the potential to raise the "underlying" rating that is an input for the next stage of the framework. The final local currency deposit rating thus reflects all forms of potential external support.

The sequential support framework is summarized in the attached diagram. The framework and the sequential support model itself are illustrated in Appendix A.

JDA for Banks – Sequential Support Model



Within the sequential framework, the JDA algorithm can theoretically be applied up to four times for a given bank, once for each potential support provider. In practice, however, few (if any) banks would have all four types of support available, and even where multiple forms of support were anticipated, systemic support (the final stage) would generally be reduced in order to avoid double-counting external support.

At each stage, the results from the previous stage (where applicable) carry over. For example, at stage 1, the Baseline Credit Assessment, derived from the BFSR mapping, will be used as the underlying rating input. At stage 2, the parent-supported rating becomes the underlying rating, and so forth. The local currency deposit rating will be the final rating output from Stage 4.

At each stage, in addition to the underlying rating (derived from the prior stage), there are three other JDA inputs:

- » the rating of the support provider, an assessment of its ability to support;
- » the probability, S , that the support provider will choose to provide support when needed (willingness to support); and
- » the default dependence (or correlation), W , between the supporter and the underlying rating for that stage.

For any particular bank, there may or may not be a separate support provider at a given stage. For example, a bank may have a parent, but it may not be a member of a cooperative association, or it may not have a significant relationship with a regional/local government. Where there is no support provider for a particular stage, we set $S = 0\%$, and the output from the previous stage automatically becomes the input to the next stage. The JDA worksheet located on www.moodys.com is a working version of the model that allows one to see the results for hypothetical situations.

The JDA framework operates in default risk space. We rely on Moody's idealized default rates when converting ratings to their default risk meanings. Appendix F shows the relationship between BFSRs, Moody's credit ratings and their default-rate equivalents. It also contains a reverse look-up table, constructed by calculating midpoints as geometric means. These can also be found in the JDA worksheet.

The Stand-Alone (Bank Financial Strength) Rating

Moody's introduced Bank Financial Strength Ratings (BFSRs) in 1995. Today, Moody's assigns over 1,200 BFSRs to banks in over 90 countries. In order to apply the JDA framework, we must assign a BFSR to each bank with a deposit rating.

In summary, BFSRs are intended to provide investors with a measure of a bank's intrinsic safety and soundness on an entity-specific basis. Thus, unlike traditional bond or deposit ratings, BFSRs are assigned to banks and not to specific debt issues. They are opinions of the stand-alone credit risk of a bank enterprise and address aspects of risk familiar to regulatory examiners and bank investors.

As such, Moody's BFSRs provide the foundation for Moody's bank credit analysis. Unlike debt or deposit ratings, however, BFSRs are not intended to measure directly the risk of credit loss, or expected loss. They do not take into consideration such factors as "too important to fail," nor do these ratings incorporate the risks associated with a deposit moratorium.

A BFSR is intended to provide a globally consistent measure of a bank's financial condition before considering external support factors that might reduce default risk, or country risks that might increase default risk. Thus, a depositor, lender or regulator can compare BFSRs across countries or regions for a consistent signal of intrinsic financial strength.

Moody's uses an A through E symbol system to distinguish BFSRs from its traditional debt and deposit ratings. For banks whose ratings do not reflect Moody's expectation of any external support, Moody's BFSRs map directly into a local currency deposit rating. That mapping is shown below.

To facilitate implementation of JDA for banks, we created the mapping as the basis for determining the Baseline Credit Assessment of a bank's stand-alone default risk. This reflects what the local currency deposit rating of the bank would be *without* any assumed external support from a government or other third party.

BFSR/Baseline Risk Assessment Mapping

BFSR	Baseline Credit Assessment (BCA)
A	aaa
A-	aa1
B+	aa2
B	aa3
B-	a1
C+	a2
C	a3
C-	baa1
C-	baa2
D+	baa3
D+	ba1
D	ba2
D-	ba3
E+	b1
E+	b2
E+	b3
E	caa1
E	caa2
E	caa3

The Bank Deposit Rating

A deposit rating - as an opinion of relative credit risk - incorporates the Bank Financial Strength Rating as well as Moody's opinion of any external support. Specifically, Moody's bank deposit ratings are opinions of a bank's ability to repay its deposit obligations punctually. As such, Moody's bank deposit ratings are intended to incorporate those aspects of credit risk relevant to the prospective payment performance of rated banks with respect to deposit obligations, and include the following: a) intrinsic financial strength; b) sovereign transfer risk (in the case of foreign currency deposit ratings); and c) both implicit and explicit external support elements.

Moody's bank deposit ratings do not incorporate the benefits from deposit insurance schemes that make payments to depositors, but they do reflect the potential support from schemes that may provide assistance to banks directly.

The foreign currency deposit rating is derived from the local currency deposit rating and is subject to Moody's country ceiling for foreign currency deposits. For banks domiciled in countries with a Aaa Country Ceiling for Foreign Currency Bank Deposits, local and foreign currency deposit ratings are identical. Banks with local currency deposit ratings above the Country Ceiling for Foreign Currency Bank Deposits will have their foreign currency deposit ratings capped by the ceiling.

In the following sections, we summarize the key elements used to determine Moody's Local Currency Deposit Ratings. Appendices B through E contain detailed scorecards used to estimate the precise support level and default dependence (where applicable).

The scorecards provide specific guidance around parameter inputs and therefore likely rating outcomes, but it is emphasized that rating committee judgment may lead to different outcomes than those implied here. In particular, an effort is made to avoid double-counting anticipated external support where a bank benefits from potentially multiple sources of support.

1. Support from the Operating Parent

This section describes the application of parental support for banks that are either wholly- or partially-owned by other rated entities, which is the initial stage of the sequential JDA framework.

Following established practices, we first address those banks whose obligations benefit from guarantees⁵ or similarly legally binding forms of credit support. At this point, we apply a 100% probability of support when rating the relevant entity. The JDA methodology also addresses the analysis of potential parental support as it relates to non-guaranteed banks. We define "parent" to mean any entity (bank, other financial institution, or non-bank) that owns 20% or more of a rated bank.

In certain cases in which there is only a shell parent that holds one or more sibling banks, each owned directly by the holding company, Moody's does not view the holding company itself as a source of support. If we believe that support is likely in such cases, we may look to the largest sibling bank of the group as the first choice of support. In the rare situation where there is no dominant sibling bank, Moody's may estimate (for internal purposes) a "group" BFSR based upon the group's financials, which would then be used as the rating of the support provider for each of the sibling banks in the group.

The parent company's own rating is regarded as a measure of its capacity to support a weak subsidiary. However, the support capacity that we ascribe may vary, depending on whether or not the parent benefits from systemic or other forms of support. For domestic subsidiaries, we will rely on the parent's own supported rating, which may include systemic support. For foreign subsidiaries Moody's will, in most cases, use the parent's Baseline Risk Assessment (bank financial strength or derived stand-alone rating), unless a case can be made that systemic support for the parent would be extended to the foreign subsidiary as well.

A parent's decision (willingness) to support its bank subsidiary is influenced by a number of issues. As detailed in Appendix B, "Parent Support and Dependence Scorecard," we consider the existence, if any, of documented support. We also consider the following: a) the level of ownership and/or management control; b) the importance of the subsidiary to the parent, including strategic fit, brand

⁵ Refer to Special Comment: "[Moody's Identifies Core Principles of Guarantees for Credit Substitution](#)" Nov 2010

and reputation risk; and c), the parent's track record of support to related entities in general or to the specific entity being rated.

As for each stage of the JDA framework, the dependence section of the scorecard is designed to establish economic linkages between the operating bank and its parent.

2. Cooperative and Mutualist Support

There is a case history of cooperative banking groups and other banking groups with similar mutual support characteristics intervening in the support of members in order to avoid potential damage to the business and reputation of the group or other members. This may be particularly evident where they carried similar names or had similar and closely connected business structures. These groups usually comprise local banks that typically own or control one or more central institutions in which certain functions are housed. Support mechanisms for group members can range from legally binding to more informal types of support.

We believe that a group's willingness to support its members is best determined by evaluating the cohesiveness of the group. This is based on an analysis of the organization of the group as well as any implicit or explicit support structures that may be in place.

The criteria shown in Appendix C, "Cooperative/Mutualist Group Support and Dependence Score Card," are designed to estimate the probability of intervention, based on meeting objective and transparent standards.

3. Regional and Local Government Support

Regional and local governments (RLGs) have also been known to intervene and support banks. They have done this for those that they own, but also for others that are deemed important to the local economy or for those banks linked to the reputation or fiscal standing of the RLG.

This support can be provided, for example, by immediate injections of cash, by providing access to additional lines of liquidity, or in the longer term, by authorizing funds for recapitalization, guarantees on deposits or other financial provisions to make good the losses of a failing bank.

Moody's will only consider for RLG support banks that meet the following minimum criteria: 1) ownership or control by a sole RLG is greater than 25%; or 2) the RLG acts as the primary regulator. Banks that do not meet the criteria will not be considered for RLG support. However, even where these criteria are met, Moody's may choose to incorporate support by RLGs in its overall systemic support assumption if it believes support by RLGs and the national governments is likely to be provided through a coordinated approach.

When evaluating the ability of the RLG to provide support, Moody's will typically use the RLG's own issuer rating. However, in cases where the RLG's issuer rating includes extraordinary support by a higher-tier government, in order to avoid double-counting support, Moody's will use the RLG's unsupported baseline credit assessment.⁶

⁶ For more information, please see Moody's Rating Methodology "[The Application of Joint Default Analysis to Regional and Local Governments](#)" December 2008.

The criteria for estimating the probability of regional or local government intervention and default dependence are shown in Appendix D, "Scorecard for Support and Dependence from Regional and Local Governments."

4. Systemic (National Government) Support

The global financial crisis reaffirmed Moody's view that most governments are at least as likely, if not more likely, to try to support their banking systems as they are to service their own debts. As noted above, the availability of support will reflect each government's *willingness* to commit public funds to support financial institutions, and its *ability* to do so. In each case, the government's decision will reflect a range of factors including i) the negative externalities arising from each bank's failure, including through its impact on depositor and investor confidence in the banking system; ii) the extent and type of resources required to prevent the failure; and iii) the availability of alternative policy instruments such as resolution frameworks. The weight ascribed to each factor will depend, among other things, on whether the problem is idiosyncratic or systemic. While the government's desire to provide support may be greater in the event of a systemic crisis, its ability to do so will be greatly reduced. The financial crisis has illustrated the speed with which systemic problems can emerge – a factor which Moody's needs to reflect in its analysis of the government's overall support capacity.

Government's own debt rating as anchor for Systemic Support Indicator⁷

For each banking system, the 'Systemic Support Indicator' ('SSI') is a measure of the overall capacity of the state to provide support to the banking system.

The starting point for Moody's analysis of a government's overall support capacity is its debt rating., Moody's recognizes that a government's willingness and capacity to provide support to banks may exceed its capacity to service its own debt, for example where supported institutions are small relative to the government's overall debt burden or where non-fiscally-dependent measures such as liquidity support and regulatory forbearance are deployed. However, those measures are less effective the more sustained and widespread are the problems in the banking system, and the crisis has shown the propensity for idiosyncratic problems to become systemic crises given the interconnectedness of the financial sector and the confidence sensitivity of banks. The more widespread the problem the government faces and the larger the banking sector relative to the economy, the more its capacity to support banks will be constrained by its own rating. Indeed, in cases where Moody's believes a government may seek to 'ring-fence' its own fiscal position from a very weak banking system, the adjustment could even be negative, implying an SSI below the government's own rating. Conversely, in very rare cases where a government's fiscal position is very strong and Moody's assessment of the risk of a system-wide banking crisis is very low, the support adjustment could be higher.

In practice, Moody's sovereign and banking analysts assess government capacity to support on a country-by-country basis, on the basis of a range of factors, including:

- » The size of the banking sector relative to the government's resources, which is an important measure of the potential call on the government's resources in the event of a systemic crisis;
- » The level of stress in the banking system and in the economy, which is a measure of the probability of a systemic crisis emerging;

⁷ See Moody's Special Comment: "[Financial Crisis More Closely Aligns Bank Credit Risk and Government Ratings in Non-Aaa Countries](#)" May 2009.

- » The foreign currency obligations of the banking system relative to the government's own foreign currency resources – a measure of the government's ability to provide the necessary support;
- » Political and historical patterns, and any recent shift in government priorities, as a measure of the government's willingness to commit public funds to support banks;
- » The availability of alternative policy tools, such as credible resolution frameworks which would allow losses to be imposed on bank creditors without serious negative externalities.

Given the limits these factors imply, SSIs are generally limited to two notches above the government's rating and will be lower than this where banking systems are largest and banks and government finances are under the greatest strain, as in Europe at present. A list of published Systemic Support Indicators are available on the [Moody's Global Bank Rating Methodology page](#).

Assessing Systemic Support

To establish probabilities of support for individual bank entities, Moody's relies on a two-step process. The first step is to identify the overall willingness of the government to support troubled banks. This is a system wide assessment that holds for all banks domiciled in a jurisdiction. The second step is to evaluate the probability that support would be extended to an individual bank.

Moody's determination of system wide support focuses on the country's history of bank-deposit defaults, as well as the importance of the banking system to the national economy and the overall strength of the banking system. The probability of national government support is in part a function of public policy. In determining the probability of support for an individual bank, we examine the significance of the bank's role in the payments system, its overall importance to the national economy, and the size of the bank's deposit and loan market shares. Moody's believes Government ownership of a bank can increase the likelihood of support, at least where that ownership is the result of policy framework which favours public ownership as a means to guiding the intermediation of credit, rather than the result of a bail-out. Deposit-taking banks wholly owned by the national government (directly or indirectly) will almost always be supported. The government's own fiscal strength also informs our assessment.

A number of developing factors⁸ are currently acting to reduce the probability of support. In Europe, while the near-term framework remains highly supportive, governments are increasingly constrained by the need to protect their own balance sheets from further expansion. Over the longer term, many governments and regulators, particularly in G-20 countries, have signaled a clear policy intent to impose losses on creditors in future rather than commit further public funds to support banks, and several of them have established or plan to enact bank-resolution regimes that increase the risk borne by creditors. Moody's is bound to factor in such changes in the financial environment or policy framework in its assessment of the likelihood of systemic support. At the same time, its ratings will continue to reflect the economic importance of a well-functioning financial sector and the limitations on any government's ability to resolve problems by other means given the complexity of banks and the interconnectedness of the banking sector.

In highly dollarized or euro-ized systems, where there is no lender of last resort, a different situation exists. In these cases, the government's financial flexibility (i.e. its capacity to print dollars or euros) and hence ability to support a failing institution, is much more limited, and the cost of bailing out banks can quickly become prohibitive. In these situations, authorities must rely on measures such as regulatory and/or accounting forbearance, private deposit insurance, or other mechanisms of indirect

⁸ See Moody's Special Comment: "[Status Report on Systemic Support Incorporated in Moody's Bank Debt Ratings Globally](#)" November 2011.

support, such as systemic coordination among banks, which are inevitably less effective the more widely spread the crisis.

Appendix E contains the two scorecards for systemic support. Specific criteria cover government-owned banks, large private-sector retail banks with national franchises, large regional banks, small local banks, wholesale banks, and other niche banks. The scorecards indicate ranges of support. Where prior sources of external support are accounted for (e.g., parent or regional government), guidelines call for systemic support to be assessed at the low end of the range. Otherwise, support levels will generally be assessed at the midpoint of the range.

Treatment of Foreign Currency Obligations

Foreign currency ratings are based on the obligation's local currency rating and Moody's country ceiling policy. Foreign currency deposit ratings are in all cases constrained by the Country Ceiling for Foreign Currency Bank Deposits. Foreign currency debt obligations may also be constrained by the Country Ceiling for Foreign Currency Bonds and Notes⁹. However, in some cases the ratings on foreign currency debt obligations may pierce the foreign currency ceiling.

Moody's methodology for determining whether or not a foreign currency debt obligation may pierce the foreign currency ceiling is based on an analysis of the following: (1) the local currency debt rating; (2) the probability that there will be a generalized foreign currency moratorium in the event of default by the government in question; and (3), the probability that, in the event of a foreign-currency payments moratorium, certain classes of debt securities may be exempted from such a moratorium.

Notching for Non-Deposit Obligations

The various senior debt liabilities issued by banks and bank holding companies are notched from the local currency deposit rating in proportion to their higher risk of nonpayment and their reduced priority of claim.

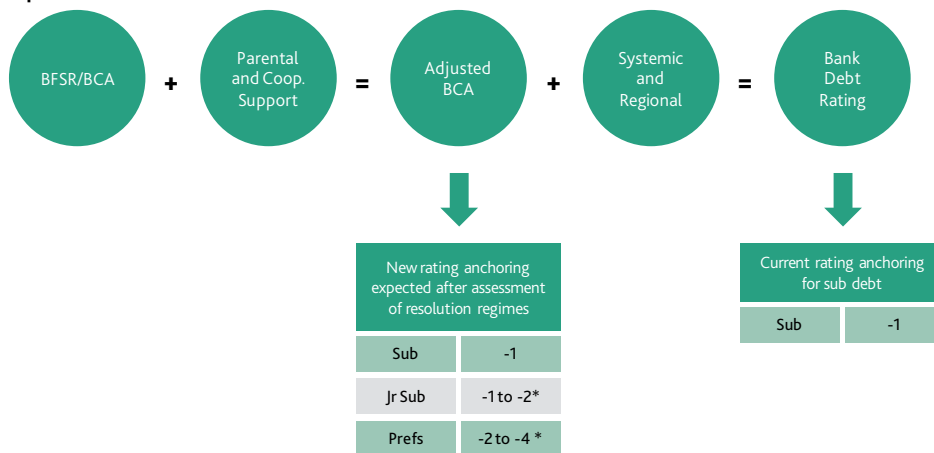
Junior Obligations

As illustrated below, the ratings of most hybrids are currently notched off the "Adjusted BCA" rather than the long-term debt rating. The Adjusted BCA reflects the bank's own intrinsic financial strength, adjusted where appropriate to reflect the likelihood of parental and cooperative or mutual support. The Adjusted BCA is also expected to be the new rating anchor for subordinated debt ratings in most markets once Moody's has completed its reassessment of support incorporated into these ratings in light of the enactment of resolution regimes. Further details are included in Moody's rating methodology for bank hybrid securities and subordinated debt.¹⁰

⁹ ["Banks Dependent on Government Foreign Currency Resources for Support"](#) February 2009

¹⁰ For details refer to the rating Methodology ["Moody's Guidelines for Rating Bank Hybrid Securities and Subordinated Debt"](#) November 2009. See also Moody's Special Comment: ["Status Report on Systemic Support Incorporated in Moody's Bank Debt Ratings Globally"](#) November 2011

Anchoring of Subordinated Debt Securities in Banking Systems where Government Support Is No Longer Expected



In systems where subordinated debt is rated at one notch below the Adjusted BCA, junior subordinated debt is typically rated two notches below the Adjusted BCA.

In some exceptional circumstances, we may decide to include some degree of regional and local government support for subordinated debt. This situation could arise, for instance, if a regional government has a material stake in a bank, potentially having granted substantial amounts of support already.

Notching from the Adjusted BCA rather than from bank debt rating reflects the higher default probability for junior debt than for senior debt. This in turn reflects the possibility that losses could occur in a restructuring outside liquidation through coupon suspension, principal write-downs, good bank/bad bank structures, and distressed exchanges.

Appendix A - Moody's Bank JDA Sequential Support Framework

	Inputs			
	Outputs			
Bank Name	[Redacted]			
Country Name	[Redacted]			
Bank Financial Strength Rating	[Redacted]			
Baseline Credit Assessment	[Redacted]			
Name of Support Provider	Parent Support	Coop Support	RLG Support	Systemic Support
Stating of Support Provider / Ability to Support Indicator	NA	NA	NA	0
	NA	NA	NA	NA
Dependence Ratio (W)	0%	0%	0%	100%
Support Level (S)	0%	0%	0%	0%
Support Bucket	[Redacted]			
JDA-Implied Rating (not capped)	Stage 1	Adjusted BCA	Stage 3	Supported Rating
Local Currency Deposit Ceiling	0	0	0	0
JDA-Implied Rating (capped by LCDC)				NA
				NA

Notes:

- If a support provider stage does not apply, enter NA for supporter's rating and leave Dependence Ratio (W) and Support Level (S) blank.
- The Local Currency Deposit Ceiling can be found on http://www.moody.com/moodys/cust/RatingAction/bl_rList.aspx?busLineid=7
- The mapping from the Bank Financial Strength Rating to the Baseline Credit Assessment can be found in The Look-up Tables tab.

Appendix B - Parent Support and Dependence Score Card

Support Scorecard

Criteria	Scoring	
1. Documented Support (i.e. comfort letters, keep well agreements, etc.)	There is an explicit legal, documented support in the form of an unconditional, irrevocable (and enforceable) guarantee.	100
	There is a strong comfort letter that appears legally enforceable, and hence equal to credit substitution, and which commits explicitly to timely payment of all obligations.	99
	There is a keepwell agreement or other documents which include statements on ownership & solvency maintenance, full & timely payment of all liabilities, and are public.	15
	There is a keepwell agreement or other documents which include ownership &/or solvency maintenance, parent has incentive & willingness to maintain a subsidiary, but documents may be unpublished.	5
	Weak comfort letter or other document which acknowledges sub's existence, but with no reference to obligations.	0
2. Legal or Regulatory Limitations on Ability to Support, especially of foreign subsidiaries.	No legal or regulatory barriers.	0
	Legal or regulatory factors limit (but do not prohibit) ability to support, e.g. prohibition on increasing ownership stake, home or host regulator inclined to disapprove.	-10
	Legal barriers or prohibitions on all types of support, especially of foreign subsidiaries	-20
3. Regulatory Requirements of Support	Written, enforceable banking regulations or laws which require support from a parent or sister company.	100
	Banking regulator may require support but regulation is unwritten or enforcement is questionable or requirement has limits. Parent is located in same country as subsidiary.	50
	Banking regulator may require support but regulation is unwritten or enforcement is questionable or requirement has limits. Parent is located in a foreign country.	15*
	Regulatory requirements of support are unlikely or ineffectual.	0
4. Control	> 50% ownership with management influence	25
	=< 50% with management influence	15
	=<50% without influence.	0
5. Reputation or Brand Risk.	Bank carries supporting parent's name and parent logo	25
	Bank carries name easily associated with parent or parent logo or recognized by market as member of group	15
	Name has no relation to parent whatsoever and no use of parent logo	0
6. Strategic Fit/Event Risk (sale or disposition risk)	Substantial tangible benefit, proximate geographic location, and highly integrated with parent's business line, customer or product strategy	25
	Strategic fit is more limited due to remote geography, divergent business line or customer base or limited integration.	15
	No obvious strategic fit	-10
7. Track Record	Any evidence of not supporting a troubled subsidiary within the past 20 years	-20
	Otherwise	0
Total Score		

* A higher score may be given if parent's home country regulator has close ties with host country, but only if the country is also strategic and important to parent.

Support Mapping

Score	Support
under 20	0%
21-30	30%
31-50	50%
51-70	70%
71-85	90%
86-95	95%
96-99	98%
over 99	100%

Default Dependence Scorecard

Criteria		Scoring
1. Degree of integration/funding dependence with parent	Low or no (0 to <20%) reliance on parent for funding	1
	20-50% reliance on parent for funding	2
	>50% of total funding dependent upon parent, or there are strong contractual arrangements such as transfers or subsidies, high operational connectivity or business integration (e.g., distribution and/or risk management systems, shared loan or fee businesses)	3
2. Correlation of macroeconomic/operating environment	Parent and sub operate in different countries with remote or low geographic or economic linkage.	1
	Parent and sub operate in same economic or monetary union or trade community.	2
	Parent and sub operate in same country or macroeconomic environment.	3
3. Shared business lines/industry focus	Parent and sub have different business focus, e.g., parent is a retail bank and sub is a specialized wholesale bank.	1
	Parent and sub share same business focus, e.g., both multi-product commercial banks.	2
Total Score		

Dependence Mapping

Score	Dependence
3, 4, 5, or 6	70%
7 or 8	100%

Appendix C - Cooperative/Mutualist Group Support and Dependence Score Card

Support Scorecard

Criteria	Scoring
1. Support Fund/guarantee	Guarantee or equivalent 20
	Unlimited Support fund/support agreement 15
	limited support fund 1
	No support fund -2
2. Branding/Logo	identical Branding/Logo 2
	Reference to group/logo 1
	no branding/logo 0
3. Charter/Constitution	Charter/constitution 2
	no charter/constitution 0
4. Sanction Rights (How much ability does group have to enforce rules or curtail activities/behavior of member?)	Sanction rights strong 2
	Sanction rights medium 1
	Sanction rights low 0
5. Economic Independence: (Does member have any independence on (i) funding (other than retail funding), (ii) investment activities (other than loans), or (iii) position taking, e.g. ALM, FX, Derivatives,etc.?)	No independence on any of the factors 0
	Independent on one factor -1
	Independent on two factor -2
	Independent on three factors -3
6. Financial Statements: (Is member included in consolidated, aggregated, or no group accounts?)	Consolidated accounts 2
	Aggregated accounts 1
	no aggregated or consolidated accounts 0
7. Operational integration: (How integrated are member's operations into the group, including IT, shared services, risk management, portfolio management?)	high degree of operational integration 2
	modest operational integration 1
	little or no operational integration 0
Total Score	

Notes:

1. If the member benefits from a limited support fund, support could be 98% but only if all other criteria are scored at their highest level.
2. If the member does not benefit from any form of support fund, support is capped at 50%.
3. For groups with a strong history of mutual support (no defaults), support could be above 0% even if no other criteria are present.

Support Mapping

Score	Support
(-5) - 2	0%
2 - 6	30%
7 - 8	50%
9	70%
10 - 14	90%
15 - 19	98%
20 or more	100%

Default Dependence Scorecard

Criteria		Scoring
1. Degree of integration/funding dependence with coop/mutual group	Low or no (0 to <20%) reliance on coop/mutual group for funding	1
	20-50% reliance on coop/mutual group for funding	2
	>50% of total funding dependent upon coop/mutual group or strong contractual arrangements such as transfers or subsidies; high operational connectivity or business integration (e.g., distribution and/or risk management systems, shared loan or fee businesses)	3
	Guarantee	7
2. Correlation of macroeconomic/operating environment	Remote or Low geographic or economic, or country risk linkage	1
	Member institutions operate in same economic or monetary union or trade community (with FTA, for example)	2
	Member institutions operate in same country or macroeconomic environment	3
3. Shared business lines/industry focus	Different business focus, e.g., group is a retail focused and member is a specialized wholesale bank	1
	Same business focus, e.g., both multi-product commercial banks	2
Total Score		

Dependence Mapping

Score	Dependence
3	30%
4	50%
5 or 6	70%
7 or 8	100%

Appendix D - Regional and Local Government Support and Dependence Score Card

Support Scorecard

Criteria	Scoring
1. Legal capacity to provide support	Regional or local government is legally permitted to support a distressed bank. 0
	Regional or local government is NOT legally permitted to support a distressed bank. -20
2. Guarantee	Regional or local government has provided a credible, explicit guarantee to support a distressed bank and has never failed to act on such guarantee when called. 24
	Regional or local government previously failed to act on a guarantee or has stated that it would not act on such guarantees; or there is no guarantee. 0
3. Historical track record	Interventions in the past twenty years, or explicit credible statement on willingness to intervene 4
	No track record of intervention. 0
	Explicit policy or administrative statement of non-intervention -17
	Regional or local government has consistently declined to support distress banks within the past 10 years. -20
4. Financial capacity to provide support	Regional or local government has the financial capacity to provide significant direct or indirect support to provide timely short-term liquidity support and substantial coverage of losses. 0
	Regional or local government DOES NOT have the financial capacity to provide significant direct or indirect support to provide timely short-term liquidity support and substantial coverage of losses. -20
5. Direct employment of bank	Below 200 (low) 0
	200 to 500 (medium) 1
	Above 500 (high) 2
6. Bank's market share (proxy for banks role as intermediary to local or regional economy)	Below 5% (low) 0
	Below 5% to 20% (medium) 1
	Above 20% (high) 2
7. Bank's contribution to RLG tax revenues	Below 1% 0
	1% to 2.5% 1
	Above 2.5% 2
8. RLG Ownership	0% (low) 0
	10-50% (medium) 1
	Above 50% (high) 2
9. Complexity of Ownership Structure	No other owners requiring agreement 0
	a. One additional owner requiring agreement -2
	b. More than one owner requiring agreement -4
10. Regulatory or oversight role (if no ownership)	No 0
	Light regulation; some oversight but not primary regulator 2
	Primary regulator oversight 6
11. Board participation	No representation (low) 0
	Appointed representatives, not within government leadership (medium) 1
	Elected, high official; Mayor or Deputy Mayor (high) 2
Total Score	

Support Mapping

Score	Support
0 (or less) – 3	0%
4 - 6	30%
7 - 10	50%
11 - 13	70%
14 - 20	90%
20 or more	100%

Default Dependence Scorecard

	> 50% of bank's revenues are from local economy	< 50% of bank's revenues are from local economy
> 50% of the RLGs' operating revenues are from fiscal Transfers and/or nationally economic related shared taxes	40%	10%
20-50% of the RLGs' operating revenues are from fiscal Transfers and/or nationally economic related shared taxes	70%	40%
< 20% of the RLGs' operating revenues are from fiscal Transfers and/or nationally economic related shared taxes	90%	70%

Appendix E - Country Support and Systemic Support Scorecards

Non-Dollarized Systems (or Less than 50% dollarized)

Criteria		Scoring
1. History of Bank Deposit Defaults*	5 or more bank deposit defaults over past 20 years	-3
	4 or fewer bank deposit defaults over past 20 years	1
	No bank deposit defaults over past 20 years	6
2. Importance of the Banking System (system assets as a percentage of GDP)**	0 to 100%	1
	100 to 200%	2
	Over 200%	3
3. Strength of Banking System (system average BFSR)	A or B	1
	C	2
	D or E	3

Total Score

* The historical trend provides objective evidence of authorities behavior to form expectation for the future. In the current environment of unprecedented legal, regulatory and policy changes affecting banks and especially where new tools are being put in place for bank resolution and loss sharing the historical view needs to be complemented with these developments to form an expectation of impact on bank creditors in the future.

** If a substantial portion of banking system assets are offshore, these may be excluded only if they are also funded offshore.

Support Mapping

Score	Country Classification
(-1) - 4	Low Support
5 - 7	Medium Support
7 - 12	High Support

Dollarized (or euro-ized) Countries (50% or greater)

Criteria		Scoring
Degree of Dollarization	Fully (legally) dollarized (country does not have its own currency and is not a member of a monetary union)	1
	Over 50% dollarized or currency board	2

Support Mapping

Score	Country Classification
1	Fully Dollarized
2	Highly Dollarized

Systemic Support Scorecard

	Government-Owned	Very High	High	Moderate	Low	None
	95 - 100%	70 - 95%	70 - 50%	30-50%	0-30%	0%
High Country Support Guideline	100% national government ownership (direct or indirect*) or partially government-owned with a specific policy mandate.	Nationwide retail bank with a meaningful (>3%) market share of deposits or loans or among top 10 banks in a fragmented system, or an important regional bank (among top 5 in region), or a bank important to the country's national payment or clearing system (i.e. system would be disrupted but would not collapse if bank defaulted), or wholesale-based institution with sizeable (>7%) share of system loans/ payments transactions.	Nationwide or regional bank or cooperative with modest (2-3%) market share of deposits or loans, or a minor wholesale-based institution.	Nationwide or regional bank or cooperative with low (<2%) market share, or a minor wholesale based institution.		All other banks, including branches of foreign banks.
Medium Country Support Guideline	100% national government ownership (direct or indirect*), or partially government-owned with a specific policy mandate.	Nationwide retail bank with a significant (>6%) market share of deposits or loans or among top 10 banks in a fragmented system, or a dominant regional bank in a region critical to the nation's economy or highly politically sensitive, or a bank important to the national payment or clearing system, or a wholesale-based institution with a substantial (>15%) share of system loans/payments transactions.	Nationwide retail bank with a meaningful (3-5%) market share of deposits or loans, or regional bank with important, but not dominant market position (among top 5 in region) relative to larger competitors in region, or wholesale-based institution with sizeable (>7%) share of loans/payments/ transactions.	Nationwide or regional bank or cooperative with modest (2-3%) market share of deposits or loans, or minor wholesale-based institution.	Nationwide or regional bank or cooperative with low (<2%) market share, or a minor wholesale based institution.	All other banks, including branches of foreign banks.
Low Country Support Guideline	100% national government ownership (direct or indirect*), or partially government-owned with a specific policy mandate.	Nationwide retail bank with a substantial (>10%) market of deposits and loans or among top 4** banks in a fragmented system, or a bank critical to the country's national payment or clearing system (i.e. system would collapse if bank defaulted).	Nationwide retail bank with a significant (6-10%) market share of deposits and loans, or a regional bank with dominant market position in a region critical to the nation's economy or highly politically sensitive, or a bank important to the national payment or clearing system, or a wholesale based institution with >15% of system loans/payments/ transactions.	Nationwide retail bank with a meaningful (3-5%) market share of deposits or loans, or a regional bank or cooperative with the largest (but still not dominant) market share in region, or a sizable wholesale based institution with >7% of system loans/payments/ transactions.	Nationwide retail bank with modest (2-3%) market share of deposits or loans, or a regional bank with significant but not the largest share in the region, or a mid- to small-sized wholesale based institution with up to 7% of system loans/ payments/transactions.	Nationwide retail bank with low (<2%) market share, or a regional bank or cooperative with modest market share in the region, or a mid- to small-sized wholesale based institution, and all other banks.

Systemic Support Scorecard

	Government-Owned	Very High	High	Moderate	Low	None
	95 - 100%	70 - 95%	70 - 50%	30-50%	0-30%	0%
Highly Dollarized System Support Guideline	100% national government ownership (direct or indirect*), or partially government-owned with a specific policy mandate.	Nationwide retail bank with a dominant (>25%) market share of deposits and loans, or the largest bank by far in a fragmented system, and is critical to the country's national payment or clearing system (i.e. the system would collapse if bank defaulted).	Nationwide retail bank with a large (15-25%) market share of deposits and loans, or one of the top 2 banks in a fragmented system, or a regional bank with dominant market position in a region that is critical to nation's economy or politically sensitive, or bank that is critical to the national payments system.	Second or third tier nationwide retail bank with a substantial (10-15%) market share of deposits or loans, or one of top 4 banks in a fragmented system, or wholesale based institution with >25% of system loans/payments/ transactions.	Nationwide retail bank with significant (5-10%) market share of deposits or loans, or regional bank or cooperative with modest market share in region, or, wholesale institution with >15% of loans/payments/ transactions.	All other banks, including branches of foreign banks.
Fully (Legally) Dollarized System Support Guideline	100% national government ownership (direct or indirect*), or partially government-owned with a specific policy mandate.				Bank that has a nationwide retail network and a large (>15%) market share, of deposits and loans, or among top 2 banks in a fragmented system, or bank critical to the national payment or clearing system, or wholesale-based institution with >25% of system loans/ payments/transactions.	All other banks, including branches of foreign banks.

* Sum all direct and indirect national government stakes, including national government employee pension funds. However, should the pension fund be run strictly in the best interests of the beneficiaries, then it should NOT be considered as a "government owner", given the likelihood it would sell underperforming assets.

** Could be up to banks 5 to 10 by size, if and only if regulators have voiced a consistent willingness to support certain banks by name or by size.

Implementation Guidance:

1. Use the Country Support Guideline decided upon in the Country Support Scorecard to determine which row to use in this matrix. For all banks you must use the same row to choose that bank's support bucket.
2. Note the use of AND and OR above. Where AND is used the bank must possess all the characteristics listed.
3. Fragmented System is defined as one in which the Top 4 Banks together control less than 40% of system assets or deposits
4. "Dominant market share" requires that a bank's market share is significantly (usually at least 50%) larger than lower-ranked competitors. In some markets no bank may be dominant; in others there could be 2 or 3 dominant banks.

Appendix F - BFSR/Rating Default Rate Look-up Tables

BFSR/Baseline Risk Assessment/ Default Rate Lookup

Reverse Rating Lookup

BFSR / BCA	Implied Default Rate	PD cut-offs	Local Currency Deposit Rating
A / aaa	0.00%	0.01%	Aaa
A- / aa1	0.02%	0.03%	Aa1
B+ / aa2	0.05%	0.07%	Aa2
B / aa3	0.10%	0.14%	Aa3
B- / a1	0.19%	0.26%	A1
C+ / a2	0.35%	0.43%	A2
C / a3	0.54%	0.67%	A3
C- / baa1	0.83%	1.00%	Baa1
C- / baa2	1.20%	1.69%	Baa2
D+ / baa3	2.38%	3.16%	Baa3
D+ / ba1	4.20%	5.34%	Ba1
D / ba2	6.80%	8.16%	Ba2
D- / ba3	9.79%	11.64%	Ba3
E+ / b1	13.85%	15.85%	B1
E+ / b2	18.13%	20.88%	B2
E+ / b3	24.04%	27.94%	B3
E / caa1	32.48%	37.75%	Caa1
E / caa2	43.88%	53.91%	Caa2
E / caa3	66.24%		

Moody's Related Research

Special Comments:

- » [Moody's Identifies Core Principles of Guarantees for Credit Substitution, November 2010 \(124437\)](#)
- » [Financial Crisis More Closely Aligns Bank Credit Risk and Government Ratings in Non-Aaa Countries, May 2009 \(115275\)](#)
- » [Banks Dependent on Government Foreign Currency Resources for Support, February 2009 \(114127\)](#)
- » [Status Report on Systemic Support Incorporated in Moody's Bank Debt Ratings Globally, November 2011 \(136724\)](#)
- » [Emerging Market Bank Ratings in Local and Foreign Currency: The Implications of Country Risk and Institutional Support, December 2001 \(72806\)](#)
- » [Proposal to Incorporate "Joint-Default Analysis" into Moody's Rating Methodologies, December 2004 \(90184\)](#)
- » [The Incorporation of Joint-Default Analysis into Moody's Corporate, Financial and Government Rating Methodologies, February 2005 \(91617\)](#)
- » [Request for Comment: Incorporation of Joint-Default Analysis for Systemic Support into Moody's Bank Rating Methodology, October 2005 \(94781\)](#)

Rating Methodologies:

- » [Bank Financial Strength Ratings: Global Methodology, February 2007 \(102151\)](#)
- » [Moody's Guidelines for Rating Bank Hybrid Securities and Subordinated Debt, November 2009 \(120307\)](#)
- » [Refinements to Moody's Tool Kit: An Addendum for Banks and Insurers, January 2006 \(96187\)](#)
- » [The Application of Joint Default Analysis to Regional and Local Governments, December 2008 \(99025\)](#)

Rating Implementation Guidance:

- » [The Local Currency Deposit Ceiling, August 2006 \(98554\)](#)

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

» contacts continued from page 1

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