

Internal Ratings: Scorecard Framework and User Guides

Introduction

Credit Analysts are responsible for assigning and maintaining Internal Credit Ratings (ICRs) and Internal Facility Ratings (IFRs) (together ICRs and IFRs are referred to as Internal Ratings). ICRs are allocated at the Counterparty level and IFRs are allocated at the Facility level. To assist the Internal Ratings allocation CRM has split substantially all Counterparties into broad, high level Industry Classes. These broad classifications are designed to identify pools of Counterparties with similar macro-economic purpose and common macro-economic Ratings Drivers. Each Industry Class is broadly defined, and Counterparties that do not map to one of these Industry Classes will be assessed through a Miscellaneous process. The current industry classes are Corporates, Insurance, Banks, Hedge Funds, Sovereigns, Broker/Dealers, Municipalities, Not-for-Profits, Special Purpose Vehicles, Lehman SPVs, Regulated Investment Advisors, Collective Investment Schemes, Pension Funds and Private Investment Management Clients. Each Counterparty defaults to a particular Industry Class based on its Industry classification in CWS (see below Appendix 16).

Once a Counterparty is mapped to an Industry Class for Internal Ratings purposes, both the ICR and IFR must be assigned using that particular Industry's pre-determined approaches. ICRs are Ratings Driver Based for all Industry Classes except for Private Investment Management Clients which are treated under a Pooled Approach. IFRs are assigned by Ratings Drivers for Corporates, Insurance Companies, Banks, Broker/Dealers, Not-for-Profit Entities, Special Purpose Vehicles, Pension Funds and Lehman SPVs. IFRs are assigned using a Pooled Approach for Hedge Funds, Sovereigns, Municipalities, Collective Investment Schemes and Private Investment Management Clients. No IFR is computed for Regulated Investment Advisors. CRM's rating philosophy and policy is fully explained in the **Credit Risk Management Global Credit Policy Manual, Section 3 Credit Analysis**.

This current document **Internal Ratings: Scorecard Framework and User Guides** is a procedural document split into three introductory sections and the Appendices. The Internal Credit Ratings section and the Internal Facility Ratings sections each describe the generic approaches used to assign the ICR and IFR respectively and provide procedural guidelines and Analyst considerations to support the policy statements in the **Global Credit Policy**. The Scorecard Framework section describes the contents of the User Guides and the Scorecard Application. The Appendices present the User Guides for each Industry Class in which a Rating Driver Based Assignment approach is utilized for the ICR. Each Appendix covers both the ICR and IFR assignment for Counterparties belonging to that Industry Class. The Approach taken to Private Investment Management Clients is further described in the **Global Credit Guidelines and Procedures for Private Clients** and is not covered in this current document.

Internal Credit Ratings

A Counterparty's ICR is intended to reflect the Credit Analyst's best expectation of a Counterparty's Probability of Default (PD) based on an analysis of its economic and financial strength, assessed "through-the-cycle" at the level of senior unsecured creditor, and usually capped by the relevant Sovereign Rating. Each Counterparty's unique PD must lie between 0% and 100% but cannot be observed or validated since a Counterparty either defaults or it does not: it cannot be observed to default a certain percentage of the time. The approach taken by CRM is to divide the PD continuum into a series of distinct and coterminous PD ranges ("bands"), and the ICR scale is the set of sequential

labels assigned to each band in turn. Counterparties are allocated the most appropriate ICR based on an assessment of their absolute and relative economic and financial strength (referred to as a Rating Driver Based Assignment), or based on industry membership (referred to as a Pooled Assignment).

The Ratings Driver Based Approach to ICR Assignment is based on identifying and assessing the broad Rating Drivers pertinent to all Counterparties within each particular Industry Class and the various Rating Factors that lie behind each Rating Driver (together the Ratings Drivers and supporting Rating Factors are referred to as Rating Criteria). Rating Criteria are those characteristics of all Counterparties within any given Industry Class that are generally considered relevant in determining the Internal Ratings, and they consist of both Qualitative and Quantitative aspects. Each Industry Class has its own set of Rating Drivers. Within each Industry Class each Rating Driver is defined on a six point scale of what constitutes an Excellent, Strong, Good, Fair, Marginal or Weak performance or standing, with reference to the Rating Criteria (Excellent = 5, Strong = 4, Good = 3, Fair = 2, Marginal = 1, and Weak = 0), and each Rating Driver is also weighted to reflect the relative importance of that Driver in establishing the overall score. Once the final score is computed it is cross referenced to Industry Class specific Rating Conversion Tables in order to establish the “Rating Driver Based ICR”. This ICR is then subject to the Sovereign Cap (see below) to derive the “Proposed ICR (Capped by Sovereign)”. The Analyst must then select the Final ICR.

While a Counterparty’s historical performance often provides a framework for the discussion of these Rating Criteria, more important in the rating determination is the outlook of the company. Many Counterparties may be impacted by mergers and acquisitions, recapitalizations or spin-offs which affect the future performance of the Counterparty. Projections, when available, can provide a “road map” of the company’s direction and the financial strategies it will use to achieve its strategic goals.

The rating “iD” is not an available rating band in the Industry specific Rating Conversion Tables. That is, ICR iD cannot be assigned using the normal Rating Methods and must be assigned as an override event. The rating iD covers entities that have defaulted and entities CRM expects to default. Generally CRM’s expectation is that Counterparties rated iCCC tend to be Counterparties that have deteriorated from a stronger initial rating and they generally either improve (e.g. restructure) or fail (via termination or default). Counterparties are likely transition from going concern to fail in short spaces of time and there may be no new measurable information that the pre-defined scorecard drivers could capture during that transition period, particularly if the distress is initiated by yet-to-be-quantified fraud. Therefore in refreshing the weakest Counterparties, Analyst may be more reliant on idiosyncratic inputs such as the explicit cause of credit deterioration, news articles, momentum and market sentiment in order to judge whether a rating of iD is warranted, and this rating is therefore entered as an override event.

Most ICRs will be subject to a Sovereign Cap. When a Counterparty is obligated to make a payment in a currency other than the currency of its normal operating revenues it may be susceptible to currency transfer risk. Currency Transfer Risk (CTR) is the risk that the Counterparty, despite having sufficient local currency to pay the obligation, may not be able to physically acquire the foreign currency it needs due to controls imposed by the host Government that impede the normal functioning of the local foreign exchange market. It is usually assumed that the host Government will only impose such controls – usually via the local banking system – if it requires all hard currency coming into the local economy to be diverted to Government needs (e.g. making payments on external debt or obtaining priority imports). These situations are usually only anticipated when the host Sovereign itself is in financial distress, and thus the probability of Sovereign default proxies the probability that CTR will be implemented. In order to factor this additional Counterparty risk into the ICR the Credit Analyst will generally cap the Counterparty’s ICR by the ICR applied to the Sovereign in which the Counterparty conducts its primary business. In situations in which the Sovereign cap is not applicable, either on a country, industry or Counterparty basis, the override function is available to remove the automatic cap.

Internal Facility Ratings

A Counterparty's IFR captures the present value of the likely recoveries that will pertain to a Facility less the likely costs of realizing those recoveries, assuming that default has taken place at some point during the period (the cycle) over which the ICR has been assessed. Any Eligible Financial Collateral held by Lehman, which is defined as cash and/or securities taken as collateral under a master netting agreement such as an ISDA/CSA, GMRA, OSLA, MRA etcetera, is netted against Exposure rather than considered part of the Recovery Rate analysis.

For Counterparties that have low PDs the Recovery Rate is considered to be best estimated via systematic variables such as External Environment, Counterparty, and Facility (aka Contract)

- External Environment – the Recovery Rate is likely to be lower in high default rate environments. In situations where there are a large number of defaults taking place (a) demand for defaulted assets will be lower because the value of those assets will be naturally lower (especially, for example, if the Counterparty defaulted due to an inability to make those assets generate profits) and (b) there is a potential situation of excess supply which naturally depresses the asset's clearing price. CRM assume a High Default Rate Environment when assigning IFRs. The Recovery Rate is also likely to be lower if the workout jurisdiction has a legal regime that is considered debtor friendly rather than creditor friendly.
- Counterparty Level – In any given situation a higher Recovery Rate will be a function of high asset disposal values and fewer competing claims on the proceeds (the monetary size and number of creditors). Asset disposal proceeds will be lower, cet par, if the Counterparty's industry is in distress, the Counterparty's assets have little other uses, and the Counterparty was unable to generate profits from those assets in the period leading up to default. If the Counterparty is a holding company (holdco) its assets might primarily consist of equity holdings in a subsidiary operating company (opco) where the real asset value lies. If there are other external claims at the level of the opco then those opco creditors are considered structurally senior compared to holdco creditors (holdco creditors are therefore considered structurally subordinated). The complexity of the workout process, which in large part might be driven by the nature and structure of the Counterparty and its wider family group, will also incur higher time and costs of workout thus reducing the Recovery Rate.
- Facility Level – creditors claims against an individual Counterparty are generally ranked according to priority levels established by reference to the applicable legal regime and by reference to the documentation under which the creditors contracted with the Counterparty. The ranking is referred to as legal seniority – the more senior the facility the higher the anticipated recovery rate compared to a lower ranking creditor, provided that the expected priorities and rankings are respected during the workout process. A facility will generally expect to recover higher values if contract specific security has been taken for two main reasons (a) relevant asset disposals will primarily accrue to the secured party rather than being spread more widely in the general creditor pool and (b) the secured party is likely to have greater influence over the asset disposal process and thus obtain better treatment than if the decisions were taken by third parties (e.g. the courts or the insolvency practitioner). Any Eligible Financial Collateral held by Lehman, which is defined as cash and/or securities taken as collateral under a master netting agreement such as an ISDA/CSA, GMRA, OSLA, MRA etcetera, is netted against Exposure rather than considered part of the Recovery Rate analysis.

For Counterparties with High PDs, and for those Counterparties already defaulted, the above drivers are augmented or superseded by information over the idiosyncratic Default Path.

- Cause of Default – the Counterparty may default because of, inter alia, funding reasons (e.g. excessive leverage or a liquidity event), business reasons (e.g. falling demand for the Counterparty's goods and services) and/or other types of event risk such as litigation.

- Nature of Default – the Counterparty may default by failure to pay (missing an interest payment, missing a principal payment) or by entering bankruptcy.
- Work Out process – the work out can take several forms including full or partial liquidation, refinancing, or trade sale. The incumbent management may stay in place or may be replaced, depending on the procedure followed.

Each Facility’s unique Recovery Rate must lie between 0% and 100%, ignoring possible situations where Recoveries could exceed 100%. However prior to a default and ultimate workout the present value of the net recovery rate cannot be observed or validated. The approach taken by CRM is to divide the Recovery Rate continuum into a series of distinct and coterminous Recovery Rate ranges (“bands”), and the IFR scale is the set of sequential labels assigned to each band in turn. Facilities are allocated the most appropriate IFR based on an assessment of identified systematic Recovery Rate drivers (referred to as a Rating Driver Based Assignment), or based on Counterparty industry membership (referred to as a Pooled Assignment).

The Ratings Driver Based Approach to IFR Assignment is used when CRM believe that there are, ex ante, identifiable and measurable systematic recovery rate drivers that can be used to estimate and differentiate the recovery rate per individual Counterparty. The Ratings Driver Based Approach takes three main forms: the Corporate Form (which serves as the basis for Corporates and Not-For-Profits), the Financial Institutions Form (which serves as the basis for Banks, Broker Dealers, Insurance Companies and Pension Funds), and the Fund Form (which serves as the basis for SPVs, Lehman SPVs and Collective Investment Schemes). The Ratings Driver Based Approach to IFR Assignment is founded on the Analyst adjusting a standard Base Reference Recovery Rate (BRRR) by assessing, per Counterparty, the cumulative impact of the pre-determined range of Recovery Rate Drivers. Each Driver has its own independently assessed marginal impact which may increase or decrease the BRRR.

For the purposes of defining a Facility against which an IFR should be assigned, Scorecards using a Ratings Driver Based Approach enable Analysts to:

- Assign individual facility ratings to each ISDA Master Agreement per Lehman Legal Entity,
- Assign individual facility ratings to each individual FX account not associated with an ISDA or other Master Netting Agreement, and/or
- Assign a single facility rating to all other facilities such as financing trades and cash forwards.

However, in practice the vast majority of Lehman’s trading relationships with any one individual Counterparty are conducted at the same level of legal seniority, usually senior unsecured. In these situations the Analyst has the ability to simultaneously assign the IFR to “All Facilities” belonging to a single Counterparty which is, in effect, the same thing as fixing the contract level variable and then applying an IFR at the Counterparty level.

The Pooled Approach to IFR Assignment is equivalent to an Industry wide recovery rate and is used when CRM believe that, ex ante, there are no identifiable and measurable systematic drivers that can be used to estimate and differentiate an individual Counterparty’s recovery rate. The Pooled Approach is used for Hedge Funds, Sovereigns and Municipalities, and is further described in the respective User Guides herein. In these circumstances all Facilities are deemed to merit the same IFR. There is no IFR assigned to Counterparties assessed under the Regulated Investment Advisor Scorecard Framework.

Regardless of the approach used, the resulting recovery rate is referenced to a standard IFR Conversion Table to determine the Proposed IFR. The IFR Conversion Table is documented in the **Credit Risk Management Global Credit Policy Manual, Section 3.4.11**, and is also reproduced in Appendix 14 below. The Analyst must then select the Final IFR. The Scorecard Application also generates a Reference IFR per Counterparty which has various uses (see below Appendix 15).

Recovery Drivers under the Corporate Form and the Financial Institutions Form are broadly similar and can be categorized into three levels: External Environment, Counterparty and Facility (see the **Credit Risk Management Global Credit Policy, Section 3.4.2 IFR Approach**), although the actual IFR Assignment process is split into five basic steps:

- Aggregate Default Rate Environment (level = External Environment) – the Base Reference Recovery Rate (BRRR) reflects a High Aggregate Default Rate Environment. This Recovery Rate Driver is a fixed value and is adjusted up or down as a result of the following steps.
- Jurisdiction Adjustment (level = External Environment) – captures the impact on the Recovery Rate of the relative Debtor or Creditor friendliness of the Counterparty’s jurisdiction based on the physical residence classification of that Counterparty.
- Asset Evaluation (level = Counterparty) – captures the impact of the likely residual value in the Counterparty’s Assets at the point of default; reflects the fact that Counterparties carry various types of assets that may retain more or less value in the event of a default.
- Security & Seniority (level = Facility) – where and how Lehman ranks against those assets; this step consists of assessing three interlinked items (1) the Seniority of Lehman’s claims, (2) the Security against Lehman’s claims, and (3) the relative level of subordinated creditors providing the cushion against Lehman’s claim.
- Complexity Adjustment (level = Counterparty) – the more complicated the workout process the more delayed the recoveries and the higher the costs of the workout, and therefore the lower the present value of the recoveries.

A sixth adjustment reflecting the likely Regulatory Response (level = Counterparty) is used in the Financial Institutions Form. The computed Recovery Rate is cross referenced to a common IFR Conversion Table to establish the Proposed IFR.

The BRRR, Jurisdiction Adjustment and Cushion Drivers are identical across the Corporate Form and the Financial Institutions Form. The Complexity Adjustment is similar in both cases although the marginal impacts are different. The BRRR, Jurisdiction Adjustment, Cushion and Complexity Adjustment Drivers are further described in Appendix 14. The other drivers for each Industry using the Corporate Form or the Financial Institutions Form are described in the relevant Industry User Guides herein. The key differences between the Corporate Form and the Financial Institutions Form are:

1. the analysis of residual Asset Values: the Corporate Form separately assesses Profitability (sale in situ) and Protection (value in break up), whereas the Financial Institutions Form combines these factors based on portfolio theory i.e. financial assets should have the same residual value in situ or in break up
2. making allowance for the likely Regulatory Response: the Corporate Form does not include any consideration of Regulatory Response because any such response is likely to be politically motivated and hence circumstance specific, whereas the Financial Institutions Form does make a small allowance based on the empirical observation that authorities are likely to assist, in a variety of direct or indirect ways (e.g. making lines of credit available, relaxing the regulatory burden, forcing healthy institutions to take over all or part of the business, or assuming central responsibility for the work out process rather than relying on the local courts system), those Financial Institutions whose unassisted distress would jeopardize the functioning of the financial system.
3. the Corporate Form includes the possibility of taking Security, whereas the Financial Institutions Form does not include that option; it is extremely rare to take non-eligible collateral (i.e. collateral outside of an ISDA or repo-style document) when dealing with Financial Institutions and any such situation should be individually dealt with via the Override function.

The Fund Form (currently SPVs only) of the Ratings Driver Based Approach starts with the following proposition:

- If the entity triggers an unwind whilst value still remains in the asset pool, and
- If Lehman Brothers ranks towards the top of the waterfall

CRM expects to recover a greater proportion of Lehman Brothers exposure at default and will assign a higher IFR than if these conditions are not met. CRM believes that in situations where Lehman is senior to other creditors then recoveries from trading with these entities should be towards the upper end of the recovery rating scale. On the other hand, subordinated positions are likely to result in limited to negligible recoveries. This approach is implemented by adjusting full (i.e. 100%) recovery downwards based on:

1. consideration of the Fund's asset construct, liabilities and structural features to determine whether there is likely to be value in the structure at the point of default
2. consideration of Lehman's priority of claim

Since unwind procedures are usually spelled out in the deal documentation, CRM believe that Fund workouts are unlikely to face legal uncertainty and that procedures would be carried out promptly, primarily driven by the ability to obtain creditor consensus (where required) and liquidate the assets.

All Internal Facility Ratings are established assuming that the governing documentation ensures that Lehman Brothers can net, terminate and close out in a timely manner following a default; if this is not the case, for example if Failure to Pay is not a termination event or there is a meaningful danger of "Cherry Picking" (close out netting proving ineffective and the insolvency administrator selects which trades to close out at which point), a preliminary Internal Facility Rating may be ascertained using the relevant approach but should then be revised downwards to conservatively recognize the shortcomings in the governing documentation.

The Analyst has a more complete set of information to utilize for Counterparties at or close to default e.g. the default scenario and the then-ruling external environment will be known. In these situations a Facility specific analysis can be undertaken based on contemporaneous, idiosyncratic features rather than systematic drivers or the pooled level; the Analyst is therefore expected to use the Scorecard's override feature to assign the appropriate IFR more frequently for poorly rated Counterparties than for well rated Counterparties. For example, in these situations a balance sheet break up analysis may be appropriate and meaningful, the state of the industry and likelihood of a trade sale known, or a regulatory response may already be in motion. Cet par, the nature of the default scenario often has implications for the expected recovery rate e.g. failure to service debt is likely to be accompanied by lower recoveries than a failure to repay bullet principal. For non-defaulted facilities there are a large number of unknowns, especially if the Counterparty has a very low PD i.e. is a long way from establishing a default scenario, and the Recovery Rate is therefore an expectation based on systematic recovery drivers, captured using either the Rating Driver Based or the Pool Based Approach.

Scorecard Framework

The Scorecard Framework is intended to capture the essence of an Expert Judgment approach. Each Industry Class has its own Framework which is intended to support the Analyst in assigning the Internal Ratings and to facilitate consistency and transparency of the Internal Ratings assignment process. The Scorecard Framework will continue to be reinforced by the Expert Judgment approach. Each Scorecard Framework consists of

1. User Guide

Each Industry Class that employs the Ratings Driver Based Approach for either the ICR and/or IFR has a User Guide. This current document **Internal Ratings: Scorecard Framework and User Guides** includes each Industry's User Guide as an Appendix. On a per Industry Class basis the User Guide defines the Industry Class and identifies and describes the Rating Criteria pertinent to that Industry Class. Ratings Criteria may be ICR specific, IFR specific, or used in both ICR and IFR assignment. For ICR assignment each definition is assigned a pre-set, fixed numeric value (i.e. Excellent = 5 through to Weak = 0). Each Rating Driver is assigned a pre-determined weight, and the User Guide includes the Industry specific ICR Conversion Table used to convert the raw weighted

scored output to a Ratings Driver Based ICR. Recovery Rate Drivers for IFR assignment are defined and measured in various ways, and each Driver is assessed in terms of its marginal impact to the Base Reference Recovery Rate. Where a Ratings Driver is used in assigning both Internal Ratings, the ICR measure is used and the relevant value is restated in the IFR section. If the Industry uses a Pooled Approach the User Guide describes the assigned pool value.

2. Scorecard Application

The Scorecard Application is a web based common format presentation of the Industry Class Scorecards and other pertinent information. The Scorecard Application must be used to enter Internal Ratings against Counterparties in Credit Workstation (CWS). The Analyst searches for Counterparties using the “Scorecards” toggle button. Whilst each Counterparty defaults to a particular Industry Class based on its Industry classification on CWS, the Analyst has the ability to map a Counterparty to another Industry Class if the Internal Ratings approach of that other Industry Class is deemed more appropriate in a specific Counterparty situation. The Analyst has the choice over applicable Rating Method in each rating assignment: “Score”, “Apply CCP” (Connected Counterparty Policy), or “Treat as Miscellaneous”. A fourth Rating Method (“Apply Dependency”) enables a dependency to be assigned the rating of the relevant Sovereign (see **Global Credit Policy section 3.4.8**). [A fifth Rating Method – “Apply APP” (Agent Principal Policy) – is automatically invoked by the Scorecard Application where appropriate.]

In order to score a Counterparty the Analyst selects the “Score” toggle button. Within the ICR section the Analyst has the ability to select Excellent, Strong, Good, Fair, Marginal or Weak per Rating Driver by selecting the most appropriate Rating Driver definition compared to the characteristics of the Counterparty under review. The definitions are available via pop-up functionality. The Scorecard assigns the appropriate numeric value to each Rating Driver based on the definition selected, weighs each Driver using the pre-set weights per Industry Class, computes the resulting score ($\sum \text{value} \times \text{weights}$), and compares that score to the Industry Class specific pre-calibrated Conversion Table to present the scorecard ICR output which is referred to as the Rating Driver based ICR. The Rating Driver Based ICR may then be capped by the relevant Sovereign ceiling, if appropriate, to present the Proposed ICR (Capped by Sovereign). The IFR section shows the IFR Ratings Drivers, some of which may be auto-completed by the Scorecard Application using pre-sourced information and some of which require additional Analyst inputs. This Recovery Rate (or Recovery Rates for multiple facilities) is then mapped to a pre-calibrated scale to present the Proposed IFR(s). The Analyst’s choice of Final ICR and Final IFR(s) are manual selections. Analysts are entitled to refine the scorecard generated Internal Ratings and assign a different ICR and/or IFR in circumstances when the Analyst believes that the Framework has not fully or appropriately captured the pertinent Rating Criteria on a case-by-case Counterparty basis. This refinement is referred to as an Output or General Override. These overrides are accompanied by a brief explanatory note, and are recorded and tracked centrally within the Scorecard Application.

The Scorecard Application includes internal consistency logic checks in the assignment of multiple IFRs per Counterparty:

- The Application prevents the User from assigning a lower Cushion value to a senior facility than the Cushion value assigned to a more junior facility.
- The Application prevents the User from assigning a worse Final IFR rating to a senior facility than the Final IFR assigned to a more junior facility.

The Connected Counterparty Policy (CCP) enables Analysts, under certain circumstances, to use Internal Ratings belonging to another Counterparty or a Family Group in determining the relevant Internal Ratings for the Counterparty under consideration. The Scorecard Framework therefore caters for rating both individual legal entities and for consolidated family groups. Family Groups are determined based on CWS hierarchies and a Family should only be scored if, in the Analyst’s opinion,

the family group can be meaningfully slotted into and scored within a single Industry Class. The Rating Methods “Apply CCP” and “Treat as Misc.” are not available on a Family Scorecard. Where a Family cannot be slotted within a single Industry Class the Analyst should further review the group structure to determine which subsidiaries, or connected group of subsidiaries, e.g. those rolling up under intermediate holding companies, require scoring and which Industry Class scorecard should be used. The Family Scorecard IFR section defaults to “All Facilities” and “Seniority = Senior Unsecured”. The CCP is further described in the **Credit Risk Management Global Credit Policy Manual, Section 3.6 Connected Counterparties**.

Each Scorecard has a CCP section which is activated by using the “Apply CCP” toggle button. This allows the Analyst, on a Counterparty by Counterparty basis, to identify either a Formal Support Provider (e.g. Guarantor) or an Informal Support Provider (e.g. Family membership), and to import that Provider’s Internal Ratings into the Counterparty under consideration. In both the Formal and Implied scenarios the Support Provider’s ICR is assigned to the Support Beneficiary but is then subject to the Sovereign cap of the Support Beneficiary. The IFR of the Support Beneficiary differs by scenario:

- Formal Support scenario: the IFR assigned to the Support Beneficiary is the Reference IFR of the Support Provider.
- Implied Support scenario: the IFR assigned to the Support Beneficiary is derived from the Support Provider IFR by a two step process (a) re-computing the Support Provider’s Reference IFR as if it were located in the jurisdiction of the Support Beneficiary and (b) capping that resulting IFR by the existing Support Provider’s IFR. For example, if the Support Provider is in France and the Support Beneficiary in the US, the (a) re-computed IFR will be higher because the US has a higher Jurisdiction Adjustment compared to the France but (b) that IFR will then be capped to that of the Support Provider; this restriction means that the Implied Support Beneficiary’s IFR can never be higher, but can be lower, than the Reference IFR assigned to the Implied Support Provider.

If the Counterparty has specific IFR needs then the Analyst can use the Override function on that Counterparty’s scorecard.

Once the Support Type has been selected the Analyst must chose the Support Mechanism. If Support Type = Formal has been selected the Support Mechanism choices should be used as follows:

- Guarantee – general guarantee to Lehman e.g. issued by parent
- Financial Guarantee Policy – to be selected when the only relationship we have with the client is under one agreement (single trade or single ISDA etcetera) and that particular transactional relationship is guaranteed by a Bond Insurer or other Financial Guarantor
- Single Guaranteed Transaction – to be selected when the only relationship we have with the client is under one agreement (single trade or single ISDA etcetera) and that particular transactional relationship is guaranteed, e.g. by the parent, whereas a general guarantee is not available.
- Statute – where the Counterparty benefits from a local law or regulation that means another entity is deemed to effectively guarantee the Counterparty e.g. French and Belgium SNCs, subsidiary entities benefiting from the Dutch Civil Code, etcetera.

The Agent Principal Policy (APP) enables CRM to generate ratings and limits for Principals which conduct their entire trading relationship with Lehman Brothers via one or more Agents. Both Agent and Principal are established on CWS as Counterparties. The Scorecard Application is constructed to auto-generate Internal Ratings for qualifying Counterparties by self-activating the “Apply APP” toggle button. The APP functionality is not available for Analyst’s manual use. The APP is further described in the **Agent & Principal Policy**.

Where neither the “Score” nor “Apply CCP” functionality is appropriate in any given situation the Analyst has the ability to select the “Treat as Miscellaneous” toggle button (excluding Family Scorecards). This Rating Method enables the Analyst to insert Internal Ratings directly into CWS.

The Scorecard Application enables Analysts to create a pro-forma blank scorecard for a Generic Counterparty under any Industry Class via the Generic Counterparty toggle. The Analyst can use these scorecards to generate Internal Ratings for entities that do not exist on CWS. These scorecards can then be either saved under Analyst stipulated entity names, deleted, saved and then deleted, or saved and then converted to a genuine CWS entity record if that entity is subsequently established on CWS.

Green information [i] buttons located throughout the Application provide additional user information.

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Appendix 1 – Corporates

Definition

Corporates are broadly defined as legal entities which primarily seek to invest in real factors of production – labor, capital, and technology – in order to produce goods and services.

Internal Credit Rating

Introduction

The first four Rating Drivers – Industry Risk & Operating Environment, Market Position, Management & Corporate Governance and Profitability – are intended to establish the Analyst’s view over the strength and debt capacity of the Counterparty independently of its financing strategy. The Analyst then reviews the Counterparty’s financing structure and financial flexibility to establish whether, in this context, the financing is comfortable and appropriate, aggressive or untenable. The Rating Drivers are split between the Business & Management Evaluation, and the Financial Evaluation.

ICR Rating Driver	Risk Weighting	Risk Weighting
Business & Management Evaluation	50%	
Industry Risk & Operating Environment		25%
Market Position		15%
Management & Corporate Governance		10%
Financial Evaluation	50%	
Profitability		10%
Liquidity		10%
Cash Flow Protection		10%
Financial Leverage & Capital Structure		20%
Total	100%	100%

ICR Conversion Table

Rating Driver Based ICR	Rating Drivers’ Weighted Score	
	>	<=
iAAA	90	100
iAA	80	90
iA+	75	80
iA	70	75
iA-	65	70
iBBB+	60	65
iBBB	55	60
iBBB-	50	55
iBB+	45	50
iBB	40	45
iBB-	35	40
iB+	30	35

iB	25	30
iB-	20	25
iCCC	0	20

Business & Management Evaluation: Risk Weighting 50%

Each rating analysis begins with an assessment of the company's environment. To determine the degree of operating risk facing a corporate, it is critical to determine the context of the corporate's industry fundamentals. The Analyst needs to identify the major exogenous risks, threats and challenges facing all members of the same industry sector, and the analysis pays particular attention how, and to what extent, the industry is affected by movements in the economic cycle. Industries that are in decline, highly competitive, capital intensive, cyclical or volatile are inherently riskier from a credit perspective than stable industries with oligopolistic structures, high barriers to entry, national rather than international competition, predictable revenue (demand) and cost levels. In addition, a company's market position determines its ability to withstand competitive pressures, including its share in key markets, product dominance and the ability to influence price. Finally, the assessment of management focuses on corporate strategy, risk tolerance and funding policies.

Industry Risk & Operating Environment: Risk Weighting 25%

The first Rating Driver involves identifying and assessing the possible risks and opportunities in a company's operating environment. The Rating Factors below can be considered in determining the score for this Rating Driver:

- Prospects for growth, stability or decline
- Cyclical of business (duration, magnitude and dynamics)
- Flexibility in the timing of capital outlays and capital intensity
- Stage of an industry's life cycle
- Risks and opportunities resulting from social, demographic, regulatory and technological changes
- Structure & competitive environment; Industry competitive environment (i.e. monopoly, oligopoly, or fragmented) including whether there is industry consolidation or expansion, and competitive activities (e.g. retailers having price wars)
- Industry overcapacity
- Sovereign Risk: Industry risk of where customers, suppliers & competitive environment are domiciled
- Structure & competitive environment
- Demand drivers: Nature of product demand (cyclical, discretionary, etcetera), customer base and Product Life Cycle
- Technology, Regulation, Environmental, Economic, FX risk
- Commodity & energy input risks and other supply risks (e.g. unionized labor force)
- Barriers to entry
- Capital requirements; fixed vs. sunk costs

Industry Risk & Operating Environment	
Excellent – Operating environment has little to no impact from economic/business cycles. Steady demand growth and ability to maintain margins without impairing future prospects. Flexibility in the time of capital outlays and moderate capital intensity. High barriers to entry. Minimal vulnerability to technological change, labor unrest, or regulatory interference	5

Strong – Economic/business cycles have minimal impact on operating environment. Product life cycle is approaching peak. Demand growth is steady and relatively unaffected by product obsolescence and regulation.	4
Good – Economic/business cycles have moderate impact on operating environment. Product demand exhibits signs of volatility or future uncertainty. There is some overcapacity that may be present which could cause retrenchment in capital outlay. Possible regulatory issues may be present.	3
Fair – Economic/business downturn impacts operating environment which may cause reduced product demand. Overcapacity may require companies operating within industry to reduce staffing and have restructuring costs. Industry is open to competition by new entrants or industries looking for vertical integration. Regulatory issues may cause a slow down or restructuring in business strategy.	2
Marginal – Economic/business cycles have direct impact on industry and product demand. Severe retrenchment of capital and possible layoffs in order to reduce overcapacity. Technological or regulatory issues have begun to impact business and reduce growth potential.	1
Weak – Operating environment has experienced years of reduced minimal product demand due to economic cycles but more possibly as a result of obsolescence and regulatory issues. International or vertical competition may be present and may have created overcapacity and minimal opportunities for growth.	0

Market Position: Risk Weighting 15%

Within Market Position the Analyst assesses the Counterparty’s operating profile and its ability to withstand exogenous industry risks. Several factors determine a company’s ability to withstand competitive pressure, including its share in key markets, product dominance and the ability to influence price. Included in this analysis is a company’s diversification by business lines and revenue streams which can help to buffer the company against declines in any one sector. Existence of long-term sales contracts and their distribution across the company’s customer base may also be examined. Any other idiosyncratic features should be assessed. Below are additional Rating Factors to assist scoring:

- Revenue reach: Market share in key markets, product dominance, product diversity and geographic spread of sales.
- Ability to influence price; Product/Price/Promotion/Place mix
- Diversification and creditworthiness of major customers
- Supplier concentrations
- Position within industry – leader, follower, upper end or lower end; vertically or horizontally integrated
- Economies of scale achieved through size
- Fixed asset location and valuation
- Public image; Brand image; “supplier of choice”
- Sovereign Risk: Operating risk of where Counterparty is domiciled as well as where its customers, suppliers and operations are located.
- Assessing core competencies: how does the Counterparty add value to the supply chain; what differentiates the Counterparty from its competitors; is this competitive advantage sustainable

Market Position	
Excellent – Dominant presence in industry with ability to affect product pricing. Established long-term relationships with customers and suppliers. Operates globally and the industry is characterized as a monopoly or duopoly. Several	5

products and is not reliant on any one product. Excellent product and geographic diversification of sales.	
Strong – Has ability to moderately affect product pricing. Has and is establishing long-term relationships with its customers and suppliers. Achieving economies of scale through offering of several products. Good ability to diversify product offerings in order to achieve economies of scale. Has a high level of operating performance. Growing market share within industry.	4
Good – Operates in a relatively fragmented market. Competitive pricing pressures and moderate size does not allow company to have much influence to affect pricing. Several products are key to a company's total sales. Moderate market share position.	3
Fair – Limited ability to affect product pricing. Company has become and is becoming increasingly competitive either through an increase in new competitors or pricing competition. Company has begun to lose a significant number of its customers/suppliers or has a large concentration of its sales to a few customers. Limited size offers little opportunity for efficiencies of operation.	2
Marginal – Recent trends have deteriorated company's market share or ability to gain market share. Limited asset size does not allow for effective competition. Inability to differentiate product offerings from competition. Obsolescence risk is significant.	1
Weak – No presence in market or is expected to continue to deteriorate substantially.	0

Management & Corporate Governance: Risk Weighting 10%

Assessment of management focuses on corporate strategy, risk tolerance and funding policies. Significant credit is given for delivering on past projections or maintaining previously articulated strategies when evaluating future growth plans and related financial projections. Corporate governance criteria have risen in importance due to recent events regarding management fraud. Close review of a company's board of directors and their ability to remain independent are key as well as the integrity of the audit process. Particular importance should be placed on ownership structures that are majority-controlled and family-owned. Whilst the Analyst is encouraged to review all aspects of the Counterparty's Management & Corporate Governance, the Analyst can choose to emphasize particular factors as being more pertinent than others when assessing the score for any individual Counterparty:

- Evaluation of corporate strategy, risk tolerance and funding policies
 - Aggressive style dedicated to rapid growth that maximizes near-term earnings at the expense of future performance
 - Growth through acquisition – motivation & financing
 - Mix of debt and equity to fund growth
 - Level of non-core operations
 - Use of corporate options in growth strategy
- Management tenure and turnaround
- Management profile, experience, reputation
- Management's track record in terms of ability to deliver on past projections or maintaining previously articulated strategies
- Labor relations
- Corporate governance issues including:
 - Independence and effectiveness of board of directors; combined chairman & CEO

- CEO style (e.g. autocracy; Nepotism; inter-connected boards)
- Related-party transactions between the company and management/shareholders (including compensation and board overview)
- Ownership structure (majority-controlled vs. privately or family-owned companies); does the owner (and its family) have a major role in management
- Shareholder rights including loading voting rights, different share classes and other ownership prerogatives
- Legal/regulatory structure and arrangements by which the public corporate entity exists; corporate structure; external market discipline
- External communications: the transparency, timeliness and reliability of accounting and other public disclosures; information / emphases in the Annual Report
- Choice of auditor and accounting policies in order to judge aggressiveness of accounting practices (including use of off-balance vehicles) and frequency of restated results & changes in accounting policies; emphasis on proforma statements and company preferred ratios

Management & Corporate Governance	
Excellent – Management is highly experienced, well diversified and has a consistent strategy which they have been able to achieve. Projections and earnings guidance have been reliable. Acquisitions are properly motivated and conservatively funded. Company has limited appetite for acquisitions. If acquisitions are made it is funded primarily through stock. Most board members are independent and the company's audit process has integrity. Limited amount of restructurings or accounting restatements. Ownership structure ensures appropriate oversight.	5
Strong – Management has several years of experience and has achieved its goals with limited restructurings. Company has modest acquisition appetite and achieves its growth internally or if externally, through stock acquisitions. Many of the directors are independent and financial reporting process is of good quality. Restructuring charges and financial restatements are limited with minimal impact on past earnings.	4
Good – Management has modest level of experience. Projections and earnings guidance have occasionally not been accurate. The company has been or has indicated that it will make acquisitions. Financial structure has been modest but the company may engage in leveraging through stock repurchase or dividends (possibly through spin-offs). Company has experienced some attrition in senior management. A few board members are independent and may not be represented on the audit committee. Company has used off-balance vehicles to gain liquidity.	3
Fair – Management is relatively new. On occasion required restructurings due to change in business strategy and has had several financial restatements. Aggressive acquisition policy (through cash) used in order to generate growth. Credit Agreement amendments required due to covenant defaults. Minimal representation of independent directors on the board.	2
Marginal – Management is minimal background and has experienced significant turnover. Lack of consistent business plan which has caused significant restructuring costs. Several substantive financial restatements which may also cause the company to postpone delivery of its financial statements.	1
Weak – Management has questionable practices and has been reportedly under investigation for fraud. Lack of proper financial disclosure, perhaps including a qualified audit opinion.	0

Financial Evaluation: Risk Weighting 50%

The financial evaluation reviews and assesses how the Corporate has arranged its financing structure and how successful its operating strategies have been in relation to its competitive environment, cost structure and financing obligations. Paramount to the ICR assessment is the Counterparty's ability to generate cash, which is reflected by the ratios that measure profitability, and whether that cash is sufficient to cover its financing, which is reflected in debt service coverage on a cash flow basis. The Financial Evaluation also provides an insight into the Corporate's financial flexibility based on its ability to generate cash through operations, asset sales and access to additional external capital. While absolute levels of ratios are important, it can be equally useful to assess trends, projections and peer group performances/comparatives.

Profitability: Risk Weighting 10%

A company's profit potential is a critical determinant of credit protection. A company that generates higher operating margins and returns on capital has a greater ability to generate equity capital internally, attract external investors, and withstand business adversity. The analysis focuses on the level, historic stability/volatility and future sustainability of the profit margin through the cycle. Additional Rating Factors that may be considered in assessing profitability include:

- Profitability is best viewed on a relative basis using trend and peer analysis
- Is profitability stable & consistent or volatile?
- Is the product mix moving towards higher margined products?
- Major sources of revenue & revenue reach
- Cost structure: fixed vs. variable costs; volatility of variable costs; ability to influence or hedge cost base
- Non-core earnings
- One time charges due to restructuring and/or write-downs of assets
- EBITDA (Earnings before Interest, Tax, Depreciation and Amortization) as well as any one-time (typically non-cash) revenue or expense items
- Key Ratios
 - Profit Margins: Measures how much a company earns relative to its sales. Three ratios may be used:
 - EBITDA Margin: $EBITDA / Sales$
 - Operating Margin: $Operating\ Income / Sales$
 - Net Profit Margin: $Earnings / Sales$
 - Return on Equity (ROE): $Net\ Income / Shareholders'\ Equity$. Measures the annual return on each dollar of book equity that accretes to shareholders. ROE is dependent on a company's capital structure which may cause the use of leverage to increase this ratio assuming sufficient funds are available to service the debt. Difficult to compare across industries as riskier industries tend to have higher ROEs.
 - Return on Assets (ROA): $Net\ Income / Total\ Assets$. Measures the annual return on each dollar of assets they control. The number will vary widely across different industries. Capital-intensive industries (like railroads and power plants) will yield a low return on assets, since they have to own such expensive assets to do business. Shoestring operations (software companies, biotechnology) will have a high ROA: their required assets are minimal.

Profitability	
Excellent – Strong earnings growth which has been consistent over several years. Minimal to no one-time charges. Profitability ratios are well above the company average and exceed its competitors. Projections indicate that earnings ratios continue to exceed those of competitors.	5

Strong – Earnings are relatively smooth and minimally impacted by one-time charges. Earnings ratios are above industry averages and those of its competitors but may have fluctuation. Future earnings continue to show growth with some level of volatility.	4
Good – Earnings have been relatively stable with minimal growth or tend to grow but exhibit large volatility. Moderate one-time charges may affect earnings. Profitability ratios are on par with industry average.	3
Fair – Earnings are volatile and may be affected by economic cycles or significant one-time charges. Earnings ratios are trending down and projections indicate continued deterioration.	2
Marginal – Earnings have declined significantly over the last several years and the company may be operating at a loss. Earnings ratios are well below industry average and projections indicate continued losses.	1
Weak – Several years of losses due to inefficient operations. Projections indicate that company may have difficulty remaining solvent.	0

Liquidity: Risk Weighting 10%

A corporate's liquidity and financial flexibility is derived from its stock of cash and other liquid assets, its ability to sell other assets at short notice, and its access to external capital either in the form of committed debt facilities, house banking relationships, tapping existing debt issuance programs or raising equity (either from existing owners or from a new external issue). Financial flexibility allows a company the latitude to meet its expected non-operating cash demands such as refinancing and capital expenditure requirements, and to manage unexpected stress, bulky non-operating demands (such as pension obligations, litigation and environmental costs) and other business adversities without eroding credit quality. The more conservatively capitalized a company, the greater its flexibility. In addition, a commitment to maintaining debt within a certain range allows a company to cope with the impact of unexpected events on the balance sheet. Key Rating Factors in determining financial flexibility include

- Current assets to current liability (current ratio)
- Working capital controls and trends
- Capital Expenditure requirements
- Availability under commercial paper program / bank facility (financial covenants)
- Amortization schedule of long-term debt; bunching
- Access to capital markets
- Short-term repayments including commercial paper and the current portion of long term debt
- Cash and marketable securities balance (excluding treasury stock and any restricted cash balances) held by Counterparty (taking into consideration cash which may be held downstream at operating companies); taking into consideration any acquisitions/capital expenditures which large cash balances may be earmarked for
- Refinance risk and reliance on proceeds from asset sales
- Liquidity event to post collateral for trading position caused by ratings downgrade
- Generation of cash balance from free cash flow or external debt/equity issuance

Liquidity	
Excellent – Strong availability under its bank facility and/or cash balances. Minimal reliance on short-term debt and limited debt obligations in the near term. Strong and demonstrated access to capital markets.	5
Strong – Good availability under its credit agreement or cash balances. Debt obligations are moderate in short-term and company has good access to capital markets.	4

Good – Fair availability under its bank facility with limited cash balance. Debt obligations in near term may impact capital expenditures and company growth. Credit Agreement may constrain company from accessing capital markets.	3
Fair – Reliance on external cash flow to fund operations as well as near term debt obligations. Asset sales may be required to fund debt burden. Moderate refinancing risk restricts ability to fund capital expenditures.	2
Marginal – Inability to fund operations and to service debt without external financing. Asset sales required to reduce debt burden due to inability to access capital markets. Negligible cash balance.	1
Weak – Minimal cash flow and cash balance. Company is restructuring its debt and has limited ability to access external financing. Operating near insolvency.	0

Cash Flow Protection: Risk Weighting 10%

Cash flow from operations provides a company with more secure credit protection than dependence on external sources of capital. Cash flow protection ratios measure the relationship of cash flow to debt and debt service and also to the firm's needs. Generally, EBITDA is a common measure used to determine a company's cash flow operating ability;

- Measures ability of company to cover its interest expense, mandatory principal debt obligations and capital expenditures through internally generated operating cash flow
- Critical for determining if the company will need to access capital markets to generate additional cash to meet its debt obligations and internal growth requirements.
- Level of debt servicing capability that is either stronger or weaker than might be apparent from earnings
- Analysis of ability to service debt internally based on historical trends as well as through projections and bank facility financial covenants
- Typical measures include the following:
 - EBITDA / Interest Expense (Interest Coverage Ratio)
 - (EBITDA less Capital Expenditures) / Interest Expense
 - EBITDA / (Interest Expense plus Mandatory Principal Debt Payments) (Debt Coverage Ratio)
 - Fixed Charge Coverage Ratio: a measure of the company's ability to meet its fixed-charge obligations: the ratio of (net Earnings before taxes plus Interest charges paid plus long-term lease payments) / (interest charges paid plus long-term lease payments).
 - Funds from Operations / Capital Expenditures

Cash Flow Protection	
Excellent – Cash flow generation is growing and has minimal volatility. Ability to service debt (interest and principal) through internal cash flow without refinancing risk. Ability to fund capital expenditures without external financing.	5
Strong – Cash flow generation is stable and is able to generate sufficient funds internally to pay interest although large principal payments may need to be refinanced. Internal cash flow is able to fund most of the company's capital expenditures.	4
Good – Cash flow generation has been flat and may have experienced volatility. Company is marginally able to fund its interest expense through operating cash flow (EBITDA). Capital expenditures are funded through external sources of financing.	3
Fair – Cash flow generation is volatile and has been (or may be) unable to pay interest expense. Company is unable to grow its business operations & fund its	2

capex through internal cash flow and must raise external funds for such needs.	
Marginal – Internal cash flow is negative or highly volatile. Requires external financing to fund interest expense. Capital expenditures are limited to maintenance/discretionary.	1
Weak – Internal cash flow is negative and company requires external financing to maintain operations.	0

Financial Leverage & Capital Structure: Risk Weighting 20%

A company's financial leverage score is intended to measure the amount of external finance and other external obligations the company has in its term financing structure relative to both its stock of internal capital and to its ability to service these external obligations through the cycle by generating internal cash flow. This ability is to be assessed with reference to the Analyst's view over the Counterparty's debt capacity. External finance includes any term liability other than shareholders' funds and includes, inter alia, debt funding, pension reserves, provisions for environmental or litigation costs, and operating & finance leases.

To assess the credit implications of a company's leverage, several factors are considered, including the nature of its business environment and the principal funds flows from operations. Because industries differ significantly in their need for capital and capacity to support high debt levels, the assessment of leverage in the capital structure also acknowledges industry norms. Leverage is not restricted to on-balance sheet items, and hence the analysis also considers off-balance sheet items such as borrowings at partly owned companies or unconsolidated subsidiaries, and securitizations.

- Measure by which to judge the amount of debt a company uses in its capital structure to fund its operations
- Off-balance sheet liabilities such as operating leases (typical with airline industry), contingent debt obligations to joint ventures and unconsolidated subsidiaries, guarantees; take-or-pay contracts and obligations (typical with utility companies), securitized receivables, and contingent liabilities due to legal judgments or lawsuit settlement (typical with tobacco companies)
- Leverage: debt adjusted for other obligations (pensions, securitizations, leases)
- Repayment profile (bunching, smoothing, refinancing policies); how much of debt is short-term (i.e. CP) vs. long-term; what the maturity profile is of outstanding debt
- Debt constituents (bank facilities vs. bonds); put options in bonds; convertibles; zero coupons; and hedging and currency matching
- Double leverage (is the debt at operating companies or at parent)
- Review of leverage ratios vs. projections/bank facility covenants
- Dividend policy & share buyback policy
- Typical measures include the following:
 - Debt / EBITDA
 - Debt and PV of Operating Leases / EBITDAR (EBITDA + Rental Payments)
 - Total Debt / Total Capitalization

Financial Leverage & Capital Structure	
Excellent – Capitalization is primarily composed of equity. Most of company's capital is long-term with limited near term debt maturities. Limited use of off-balance vehicles for financing.	5
Strong – Majority of capital is composed of equity. Long-term debt has a medium duration with minimal amounts due in the near term. Modest use of off-balance vehicles for financing.	4

Good – Capitalization is mixed between debt and equity. Leverage ratios are average for the industry. Use of asset-based financings in order to access the external debt markets. Good use of off-balance sheet vehicles for financing.	3
Fair – Large portion of capital of composed of debt which may have significant near term debt maturities. Company's leverage ratio indicates that the company has insufficient internal cash flow to repay debt maturities and will have refinancing risk. Large portion of liquid assets are secured or used for securitization. Significant off-balance sheet commitments.	2
Marginal – Capital is mainly composed of debt and company has engaged in a significant number of debt restructurings. Use of working-capital facilities or borrow based facilities to fund operations.	1
Weak – Capital is entirely composed of debt and/or may be operating near insolvency. Debt is currently being restructured and may require DIP financing.	0

Internal Facility Rating

Introduction

The IFR for a Counterparty using the Corporate Scorecard is assigned using the Ratings Driver Based Approach, Corporate Form. This approach consists of increasing or decreasing the Base Reference Recovery Rate (BRRR, stated as a percentage value) by the cumulative percentage points (%pts) impact of the following IFR Ratings Drivers – the Jurisdiction Adjustment, an adjustment for residual asset values (Asset Evaluation), an adjustment for the relevant Seniority & Security, and the Complexity Adjustment – to determine the Proposed IFR by reference to the standard IFR Conversion Table.

The Base Reference Recovery Rate, the Jurisdiction Adjustment, the Complexity Adjustment, the Cushion and the IFR Conversion Table are further discussed in Appendix 14. This current Appendix covers the adjustments for asset values (Asset Evaluation) and Seniority & Security.

Asset Evaluation

Industry Distress

Industry membership in itself is not considered to be a primary driver of recovery rates. However, ceteris paribus, if any given Industry is considered to be in distress then CRM believe this is likely to result in lower Industry wide recovery rates than otherwise expected (compared to the BRRR). Industry distress is proxied by reference to the Industry Risk & Operating Environment Driver score in the ICR Ratings Driver section: the greater the exogenous threats facing all Counterparties within any given Industry, the less likely those Counterparties' component assets would prove attractive to buyers, or retain their value, through a work out process. For conservatism, CRM do not credit the BRRR for Counterparties with relatively lower exogenous threats.

Industry Distress	
ICR Industry Risk & Operating Environment	Adjustment to BRRR
Excellent, Strong, Good, Fair	No Adjustment
Marginal	-5%pts
Weak	-10%pts

Asset Profitability

Cet par, assets that generate profits are not only less likely to default but are also more likely to recover value via a workout process than unprofitable assets. On the other hand assets that generate losses are less likely to recover the BRRR than the average Counterparty. Asset Profitability is captured from the Profitability score in the ICR Ratings Driver section. CRM consider this impact on the BRRR less significant than for Industry Distress. For conservatism, CRM do not credit the BRRR for Counterparties with relatively higher inherent asset profitability.

Asset Profitability	
ICR Profitability	Adjustment to BRRR
Excellent, Strong, Good, Fair	No Adjustment
Marginal	-3%pts
Weak	-5%pts

Asset Protection

Cet par, certain Assets are more likely than others to retain value, i.e. provide better Creditor protection, during a workout procedure. Asset Protection is likely to be higher if the Counterparty has a large proportion of high quality current assets (e.g. >50% of total assets, excluding current assets that are highly correlated with the business such as work in progress or finished stock, and delinquent receivables), and/or high proportion of PPE with alternative uses (e.g. > 50% of total assets excluding sunk costs and taking into account any assets for which book value may be a misleading indicator), and/or significant brand value and other off-balance sheet items offering material protection. CRM refer to the summation of such current assets, PPE and off-balance sheet items as the level of Hard Assets, and the remainder as Soft Assets. Often Counterparties in any given Industry Class might be expected to share certain common features. The distinction between High, Moderate and Low is not explicitly measured or defined given the potential variability on a Counterparty by Counterparty basis, and the choice over assigned score is therefore based on the Analyst's Expert Judgment.

Asset Protection	
	Adjustment to BRRR
High – predominantly Hard Assets	+10%pts
Moderate – a broad balance in Asset mix	No Adjustment
Low – predominantly Soft Assets	-10%pts

Seniority & Security

Analyst scoring over Seniority and Security potentially has the single largest impact on the Corporate Form of all the adjustment drivers. This factor is assessed at the Contract Level. Seniority speaks to the level of an individual Facility in the priority of payments ordering in the event of a breakup, assuming that the absolute priority rule holds. If the Analyst has any reason to believe that the absolute priority rule will not hold then the Facility should be assigned to a lower, more appropriate, Seniority level. Security often goes hand-in-hand with Seniority i.e. Senior Secured is a common ranking whereas Subordinated Secured is not. Having Security improves the creditor's expected recovery position due to two features (a) increased control over the workout process and (b) particular asset liquidation values accrue primarily to the secured creditor rather than being diluted into the general creditor pool.

Seniority & Security	
	Adjustment to BRRR
Senior Secured 1 st lien over all Hard Assets	+30%pts

Senior Secured 1 st lien over partial Hard Assets	+15%pts
Stock pledge (immaterial actual or potential structural subordination)	+10%pts
Stock pledge (material actual or potential structural subordination)	+5%pts
Senior Secured 2 nd lien over any assets	+5%pts
Senior Unsecured	No Adjustment
Subordinated	-20%pts

Appendix 2 – Insurance Companies

Definition

Insurance Companies are defined as legal entities that primarily exist to provide customers (policyholders) with compensation for specific losses in exchange of a periodic payment.

Internal Credit Rating

Introduction

The process of credit analysis of an insurance company entails two distinctive segments: Business & Management Evaluation and the Financial Evaluation. The first three Rating Drivers – Industry Risk & Operating Environment, Market Position, and Management & Corporate Governance comprise the first segment – Business and Management Evaluation. The Analyst will establish an opinion as to the Counterparty’s position in its respective industry and markets, as well as perform qualitative evaluation of the management’s strength and discipline. The second segment, Financial Evaluation comprises a review of the Counterparty’s profitability, investments and liquidity, financial flexibility and capitalization which enables the Analyst to evaluate the financial strength of the Company’s operations, strength of its liquidity position and adequacy of the capital levels.

ICR Rating Driver	Risk Weighting	Risk Weighting
Business & Management Evaluation	30%	
Industry Risk & Operating Environment		10%
Market Position		10%
Management & Corporate Governance		10%
Financial Evaluation	70%	
Profitability		10%
Investments & Liquidity		20%
Financial Flexibility		10%
Capitalization		30%
Total	100%	100%

ICR Conversion Table

Rating Driver Based ICR	Rating Drivers’ Weighted Score	
	>	<=
iAAA	90	100
iAA	80	90
iA+	74	80
iA	64	74
iA-	60	64
iBBB+	56	60
iBBB	53	56
iBBB-	50	53
iBB+	46	50
iBB	43	46
iBB-	40	43

iB+	36	40
iB	33	36
iB-	30	33
iCCC	0	30

Business & Management Evaluation: Risk Weighting 30%

Each rating analysis begins with an assessment of the company's environment. To determine the degree of operating risk facing an insurance company, it is critical to determine the context of the Counterparty's industry and sub-sector fundamentals (i.e. P&C vs. Life insurance and reinsurance). Sectors that are highly competitive, cyclical or volatile are inherently riskier than more stable sectors. In addition, an insurer's market position determines its ability to withstand competitive pressures, including its share in key markets, product dominance and the ability to influence price. Finally, the assessment of management focuses on corporate and financial strategies and risk appetite.

Industry Risk & Operating Environment: Risk Weighting 10%

The first Rating Driver involves the possible risks and opportunities in a company's operating environment. Rating Factors include:

- Overall economic environment
- Risks and opportunities resulting from social, demographic and regulatory changes
- Cyclicalities of economic cycle
- Cyclicalities of pricing cycle
- Trends affecting the industry and its sub-sectors
- Risks inherent in new products
- Maturity of industry and product offerings in terms of pricing and claims experience
- Industry competitive environment, including industry consolidation, fragmentation or expansion; industry maturity; barriers to entry
- Prospects for growth, stability or decline
- Industry overcapacity
- Regulatory environment; quality of regulation in terms of frequency of reporting and inspection, sophistication of regulators and propensity to take action before default occurs
- Accounting framework
- Access to risk mitigation including catastrophe bonds and other derivatives
- Legal environment – contract enforceability, trends in claim frequency and settlement magnitude

Industry Risk & Operating Environment	
Excellent – Operating environment is stable and mature. Economic cycles have little to no impact on the Company's performance. Strong demand and positive growth prospects. Minimal vulnerability to demographic, social and regulatory changes. Primary operations based in highly rated and developed countries with strong legal, accounting and industry specific frameworks. Strong and sophisticated regulation. Ability to measure and lay off risks. Strong legal framework for contract specification and claim resolution.	5
Strong – Economic/business cycles have minimal impact on operating environment. Stable demand and growth prospects. Limited vulnerability to demographic, social and regulatory changes. Strong regulation. Primary operations based in countries with strong legal, accounting and industry specific frameworks.	4

Good – Economic/business cycles have moderate impact on operating environment. Demand exhibits signs of volatility or future uncertainty. There is some overcapacity or under-reserving which could cause retrenchment in capital outlay. Possible regulatory issues/changes. Primary operations based in highly rated and developed countries, but also have some exposure to emerging or economically weak/instable markets.	3
Fair – Economic/business downturn impacts operating environment which may affect demand, revenues and profits. Regulatory issues, overcapacity and/or under-reserving may require restructuring of costs and operations, and relocating of capital. Primary operations based in highly rated and developed countries, but also have moderate exposure to emerging or economically weak/instable markets.	2
Marginal – Economic/business cycles have direct impact on the industry and its product demand. Regulatory issues, overcapacity and/or under-reserving require divesting or restructuring of operations. Considerable exposure to emerging or economically weak/instable markets.	1
Weak – Operating environment has experienced years of reduced minimal product demand due to economic cycles but more possibly as a result of obsolescence and regulatory issues. Minimal opportunities for growth. Significant exposure to emerging or economically weak/instable markets.	0

Market Position: Risk Weighting 10%

Several factors determine a company’s ability to withstand competitive pressure, including its share in key markets, product dominance and the ability to influence price. Included in this analysis is a company’s diversification by business lines and revenue streams which can help to buffer the company against declines in any one segment. Number, quality, loyalty and cost of distribution systems may also be examined. Other Rating Factors include:

- Any notable concentration within an industry/sub-sector
- Market share in key markets, product dominance and the ability to influence price
- Product diversity and any significant risk in any particular product line
- Geographic spread of sales and country risk issues in major sales regions/ reach of distribution systems
- Diversification of distribution channels
- Economies of scale achieved through size
- Brand strength and reputation and customer loyalty

Market Position	
Excellent – Dominant presence in industry with ability to affect product pricing. Operates globally and within diversified lines of business - excellent product and geographic diversification of sales. Has loyal distribution and cost-efficient system, and uses multiple channels.	5
Strong – Has ability to moderately affect product pricing. Robust asset base, geographic and product diversification help achieve economies of scale. Growing market share within industry. Has sound distribution system and uses multiple channels. Niche position supported by a strong competitive advantage.	4
Good – Competitive pricing pressures and moderate size does not allow company to have much influence to affect pricing. Moderate market share position. Several lines of business are key to company's total sales. Distribution system is good enough to provide access to couple of markets, but it does not provide the insurer a competitive advantage.	3

Fair – Limited ability to affect product pricing. Company focuses on few products/lines of business, but in neither maintaining a significant market share. Inability to differentiate product offerings from competition. One or limited distribution channels with relative volatility of sales.	2
Marginal – Recent trends have reduced company's market share or ability to gain market share. Limited asset size does not allow for effective competition. One product line accounts for majority of sales. Marginal geographic diversification. High cost of distribution and low loyalty places company at a competitive disadvantage.	1
Weak – No or very weak market position. Small size and no product or geographical diversification. Presence in market is marginal and is expected to continue to deteriorate substantially.	0

Management & Corporate Governance: Risk Weighting 10%

Assessment of management focuses on corporate strategy, risk tolerance and funding policies. Significant credit is given for delivering on past projections or maintaining previously articulated strategies when evaluating future growth plans and related financial projections. Corporate governance criteria have risen in importance due to recent events regarding management fraud. Close review of a company's board of directors and their ability to remain independent are key as well as the integrity of the audit process. Particular importance is placed on ownership structures that are majority-controlled and family-owned. Whilst the Analyst is encouraged to review all aspects of the Counterparty's Management & Corporate Governance, the Analyst can choose to emphasize particular factors as being more pertinent than others when assessing the score for any individual Counterparty.

- Evaluation of corporate strategy, risk tolerance and funding policies
 - Aggressive style dedicated to rapid growth that maximizes near-term earnings at the expense of future performance
 - Growth through acquisition – motivation & financing
 - Mix of debt and equity to fund growth
 - Level of non-core operations
 - Use of corporate options in growth strategy
- Management tenure and turnaround
- Management profile, experience, reputation
- Management's track record in terms of ability to deliver on past projections or maintaining previously articulated strategies
- Labor relations
- Corporate governance issues including:
 - Independence and effectiveness of board of directors; combined chairman & CEO
 - CEO style (e.g. autocracy; Nepotism; inter-connected boards)
 - Related-party transactions between the company and management/shareholders (including compensation and board overview)
 - Ownership structure (majority-controlled vs. privately or family-owned companies); does the owner (and its family) have a major role in management
 - Shareholder rights including loading voting rights, different share classes and other ownership prerogatives
 - Legal/regulatory structure and arrangements by which the public corporate entity exists; corporate structure; external market discipline
 - External communications: the transparency, timeliness and reliability of accounting and other public disclosures; information / emphases in the Annual Report
 - Choice of auditor and accounting policies in order to judge aggressiveness of accounting practices (including use of off-balance vehicles) and frequency of restated results &

changes in accounting policies; emphasis on proforma statements and company preferred ratios

Management & Corporate Governance	
Excellent – Management is highly experienced, well diversified and has a consistent strategy which they have been able to achieve. Projections and earnings guidance have been reliable. Acquisitions are properly motivated and conservatively funded. Company has limited appetite for acquisitions. If acquisitions are made it is funded primarily through stock. Most board members are independent and the company's audit process has integrity. Limited amount of restructurings or accounting restatements. Ownership structure ensures appropriate oversight.	5
Strong – Management has several years of experience and has achieved its goals with limited restructurings. Company has modest acquisition appetite and achieves its growth internally or if externally, through stock acquisitions. Many of the directors are independent and financial reporting process is of good quality. Restructuring charges and financial restatements are limited with minimal impact on past earnings.	4
Good – Management has modest level of experience. Projections and earnings guidance have occasionally not been accurate. The company has been or has indicated that it will make acquisitions. Financial structure has been modest but the company may engage in leveraging through stock repurchase or dividends (possibly through spin-offs). Company has experienced some attrition in senior management. A few board members are independent and may not be represented on the audit committee. Company has used off-balance vehicles to gain liquidity.	3
Fair – Management is relatively new. On occasion required restructurings due to change in business strategy and has had several financial restatements. Aggressive acquisition policy (through cash) used in order to generate growth. Credit Agreement amendments required due to covenant defaults. Minimal representation of independent directors on the board.	2
Marginal – Management has minimal background and has experienced significant turnover. Lack of consistent business plan which has caused significant restructuring costs. Several substantive financial restatements which may also cause the company to postpone delivery of its financial statements.	1
Weak – Management has questionable practices and has been reportedly under investigation for fraud. Lack of proper financial disclosure perhaps including a qualified audit opinion.	0

Financial Evaluation: Risk Weighting 70%

The financial evaluation reviews and assesses how the Insurance Company has arranged its financing structure and how successful its operating strategies have been in relation to its competitive environment, cost structure and financing obligations. Paramount to the ICR assessment is the Counterparty's ability to generate revenues while managing expenses and underwriting risks. Additionally, liquidity measures and adequate capitalization are equally meaningful in the financial evaluation. While absolute levels of ratios are important, it is equally important to focus on trends and compare these ratios with those of competitors.

Profitability: Risk Weighting 10%

A company's profit potential and ability to sustain earnings through the cycle is a critical determinant of credit protection. The ongoing profitability and solvency of an insurance company is determined

by its ability to assess the risk in the business it is writing, price that risk accordingly net of distribution costs, set up appropriate reserves, generate reliable income from its invested premiums, and process the resulting claims efficiently. A company that sustains net income over the cycle will generate internal resources, is more attractive to external capital providers and has a stronger ability to withstand significant unexpected claims and other business adversities. Rating Factors include:

- Factors driving profitability: Revenue growth, underwriting risks and performance of invested assets.
- Assessment of operating or underwriting income. Conservativeness of underwriting guidelines. What is the nature of claims experience? Reliance on investment income for non-life and reinsurers.
- Is profitability improving, stable/consistent or volatile and sustainable?
- Does investment income comprise a mix of recurring income v reliance on one off capital gains?
- One time charges due to restructuring and/or write-downs of assets, abnormal claims experience and management approach to one off items. (e.g. tightening of underwriting standards)
- Other non underwriting business issues.
- Key Ratios
 - Return on equity: $\text{Net Income} / \text{Shareholders' Equity}$. Measures the annual return on each dollar of equity. Under US Statutory Accounting the ratio $\text{Net Income} / \text{Policyholders' Surplus}$ is more appropriate.
 - Return on assets: $\text{Net Income} / \text{Total Assets}$. Measures the annual return on each dollar of assets controlled.
 - Life Expense ratio: $\text{Total Net Expenses} / \text{Total Assets}$. Measures the cost effectiveness of the underwritten business.
 - Non-life Expense ratio: $\text{Total Net Expenses} / \text{Net Written Premiums}$. Measures cost effectiveness of the underwritten business.
 - Non-life Claims ratio: $\text{Claims Incurred} / \text{Net Premiums Earned}$. Measures loss incidences as a percent of total business written.
 - Direct yield on invested assets: $\text{Net Investment Income} / \text{Total Invested Assets}$.
 - Total return: $\text{Net Investment Income inc. Realized and Unrealized Gains} / \text{Total Invested Assets}$.

Profitability	
Excellent – Strong and sustainable earnings growth which has been consistent over several years. Technical result has historically been positive. Minimal to no one-time charges. Conservative approach to underwriting, predictable claims experience and efficient claims processing. Profitability ratios are well above peers.	5
Strong – Earnings are relatively smooth and minimally impacted by one-time charges. Underwriting results have on average been positive. Earnings ratios are above industry averages and those of its competitors, but may have experienced fluctuation.	4
Good – Earnings have been relatively stable with minimal growth or tend to grow but exhibit some volatility. Moderate one-time charges may affect earnings. Profitability ratios are on par with industry average.	3
Fair – Earnings are volatile and have relied on investment income. They are affected by economic cycles or significant one-time charges. Earnings ratios are trending down and projections indicate continued deterioration.	2
Marginal – Both underwriting and investment income have been very volatile. Earnings have declined significantly over the last several years and the company operates at a loss. Earnings ratios are well below industry average and projections indicate continued losses.	1

Weak – Several years of losses due to inefficient operations. indicate that the company may have difficulty remaining solvent.	Projections	0
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Investments & Liquidity: Risk Weighting 20%

Premiums, net of overheads, are invested in financial assets (“invested assets”) in order to provide the insurer with the financial resources necessary to meet actual policy holder claims. Premiums are calculated based on expected claims and often the expectation of investment returns on the invested assets – both capital growth and income – enables insurers to set more competitive premiums and incur underwriting losses. The invested asset mix should be designed to provide a mix of capital certainty, liquidity, duration, and investment returns to meet the expected claims experience as it evolves over time i.e. appropriate Asset-Liability Management. Reinsurance contracts are also used to provide another source of value to draw on to meet qualifying claims. Whilst the focus of the Analyst is to determine the rating applicable to a generic unsecured creditor, we generally assume that the weaker the insurer’s ability to meet its policy holder claims, consequently the weaker its ability to meet unsecured creditors. Different types of policy, and different policy portfolio mixes (i.e. combination of product lines), lead to different expected claims profiles and hence each individual insurer’s invested asset mix should be appropriate to that nature of that insurer’s policy liability profile. Generally speaking, the more risky the potential claims experience, the more conservative the invested asset mix should be. However, whilst it is very difficult for the Analyst to define exactly what an appropriate mix in each circumstance, the Analyst reviews the asset portfolio against certain principals.

- Diversification – generally a diversified asset pool provides better capital certainty and a more predictable source of investment returns. The assessment of diversification might consider, inter alia, the broad asset class (e.g. bonds, equities and cash), the mix within asset class (e.g. cyclical v growth stocks), and the currency and rate risks involved (e.g. fixed v floating).
- Quality – generally higher quality portfolios lead to better capital certainty but lower growth. Analysis includes the mix of blue chips to growth stocks, OECD issuers to EMG issuers, government bonds to corporate bonds, the mix of investment grade and high yield corporate bonds etcetera.
- Valuation – the asset valuation basis and the treatment of unrealized gains; for example, are unrealized gains being reported and unreasonably relied upon?
- Speed of adjustment – many insurers have suffered weakened financial profiles by not responding quickly enough to changes in the investment environment e.g. being excessively long equities going into an equity market downturn but stubbornly sticking to the asset class.
- Liquidity and Duration – the maturity profile of the assets should broadly reflect the maturity profile of the expected claims experience.
- Hedging – an insurer that actively manages the portfolio using derivatives in an appropriate manner creates an opportunity to generate greater returns or protect its capital certainty without incurring additional risks or expenses.
- Reinsurance – buying reinsurance contracts transfers risks in the claims experience to third parties and thus, if the reinsurance provider is of good quality, the ceding company is effectively outsourcing the claims paying risks for those particular contracts.
- Actuaries – reputation of the in-house and consulting actuaries
- Third party funds management and separate accounts / linked liabilities – the performance and reputation of an insurer’s investment management operation can often be proxied by the size of its external funds under management.
- Ratios used:
 - High risks assets / Surplus
 - Realized Capital losses / Surplus
 - Investment in Equities as a % of total investments

Investments & Liquidity	
Excellent – Very strong investment quality comprising significant levels of cash and marketable securities. No investment concentrations. Asset Liability management is very sophisticated and the assets are closely matched with the liabilities. Equity investments are appropriate with respect to the liability profile. The fixed income portfolio is dominated by high grade fixed income investments, such as treasuries, highly rated corporate and municipal credits. Below investment grade investments are insignificant. On average, has demonstrated recurrent net unrealized gains.	5
Strong – Sound overall investment quality comprising above average cash and marketable securities balances, invested in high quality fixed income credits, dominated by highly rated corporate bonds, followed by treasuries and high grade municipals and possibly equities. Below investment grade investments are still minimal. ALM is at an advanced stage. Small mismatch, if any, between assets and liability. Historically, very few realized investment losses. Uses combination of highly rated on-shore and off-shore re-insurers.	4
Good – Good investment quality comprising adequate cash and marketable securities balances. Liquidity is good. Portfolio is dominated by fixed income investments, primarily high grade corporate bonds and possibly equities. Below investment grade investments represent a higher portion of the fixed income investments. Historically realized investment losses in line with the industry average. Uses at least A rated re-insurers, but predominately off shore based.	3
Fair – Modest cash and marketable securities balances that provide adequate liquidity. There can be a substantial investment in equities/mortgages as percent of total investments. Below investment grade bonds represent a significant portion of the total bonds. ALM is not very developed. Realized investment losses higher than the industry average. Over reliance on reinsurance in managing its risks.	2
Marginal – Liquidity is poor with minimal cash and marketable securities available. ALM is poor. Investment in equity is very aggressive irrespective of the type of business written. A significant portion of the fixed income portfolio is made up of below investment grade bonds and “fallen angels”. Historically substantial and frequent realized investment losses.	1
Weak – The portfolio is extremely illiquid and dominated by equities, mortgages and real estate, and/or below investment grade bonds and “fallen angels”. Material realized capital losses have eroded earnings and capital. Questionable prospects that it would be able to cover its obligations in near term.	0

Financial Flexibility: Risk Weighting 10%

Financial Flexibility is important to the analysis for several reasons:

- Meeting unexpected claims – claims that are not covered by invested assets and existing reinsurance contracts – without threatening the solvency of the insurer. Regulations may prevent invested assets held against one set of policies being used to meet unusual claims lodged by another set of policy holders, thus forcing the insurance company to find immediate sources of finance outside of the invested assets. Unexpected claims may arise in the short term due to an unusually large or frequent claims and lawsuits, or over the medium to longer term due to “claims inflation”, although medium and longer term unexpected claims may be catered for by adjusting the invested asset mix.

- Maintaining access to the capital markets to support business growth and to protect its Market position during cyclical downturns and/or a rapidly consolidating marketplace
- Meeting unusual operating expenses such as regulatory fines
- To allow the insurance company to respond at short notice to new business opportunities

Financial Flexibility is sourced from:

- Access to additional equity either from tapping the external capital markets (public companies – need to see demonstrated historic access), supportive owner(s) with track record of providing funding or tolerating dividend cuts (private companies, especially relevant for members of wider financial groups), and in the case of Mutual companies a similar concept of financial flexibility can be ascribed to the level and flexibility of member rebates.
- Maintaining a reasonable level of non-policy holder specific liquid assets such as cash and marketable securities
- Retaining committed bank lines especially from “house” banks
- Maintaining an active and successful debt and/or CP issuance programs
- Availability of reinsurance

As with Investments & Liquidity, the Analyst is encouraged to assess Financial Flexibility with a view to the likelihood of unexpected claims and in the context of the long term growth strategy of the company.

Financial Flexibility	
Excellent – Strong and demonstrated access to capital markets. The Company has successfully undergone number of equity/debt issuances. The Company has ample availability under its credit facilities and/or CP programs.	5
Strong – Proven access to capital markets. The Company has undergone several equity/debt issuances. The Company has available credit facilities and/or CP programs.	4
Good – Some, but infrequent access to capital markets. The Company has undergone few equity/debt issuances. The Company has available credit facilities and/or CP programs and may already be using these facilities on an ongoing basis.	3
Fair – Limited access to capital markets. Infrequent issuance of debt/equities and/or has experienced some volatility or other issues, such as substantial price volatility, breach of covenants and other legal issues. There may be some availability of credit facilities and/or has a history of drawing under its facilities.	2
Marginal – Asset sales might be required to reduce debt burden or cover obligations due to inability to access capital markets. Access to capital markets or availability of bank credit facilities is limited.	1
Weak – Limited or no financial flexibility. No access to capital markets and no availability of bank credit facilities or CP programs.	0

Capitalization: Risk Weighting 30%

Capitalization is a one of the most important aspects of the insurance companies’ financial and credit strength, as it represents a “cushion” in times of financial distress. Capital is used to support deterioration in invested assets (e.g. weaker than expected investment income) and increased reserving requirements (e.g. arising from a larger or more frequent claims experience than expected). The source of and constituents of capital and its growth trends are crucial in understanding the company’s risk profile and risk appetite. Internal generation of capital (retained earnings) versus frequent parent contributions/ debt issuance is preferred. Any capital that is repayable (e.g. debt), unsubscribed (e.g.

undrawn capital commitments) or otherwise uncertain is viewed as less reliable sources. Reliance on debt funding also introduces additional servicing and refinancing risks.

Insurance holding companies should be treated conservatively. Debt can be issued at the holding company rather than the operating company level, thus creating double leverage, and the holding company is usually reliant on upstream dividends from operating companies to service this debt. The regulated nature of operating companies often means that the holding company is restricted in the amount of dividends it can extract upstream. Double leverage also arises when intermediate operating companies include investments in downstream operating companies as financial assets for reserving adequacy purposes.

Important Rating Factors on determining a Company's capital position include:

- Surplus or Equity: Evaluating growth trends of the capital and the balance between internal generation versus usage of capital markets
- Quality of capital: hard vs. soft capital
- Use of debt and or hybrid funding
- Potential strain on capital: Is business growth supported by adequate capital growth
- Capitalization ratios: such as the RBC ratio calculated by the National Association of Insurers Commissioners (NAIC) or other local equivalent solvency measures
- Reserve adequacy
- Operating Leverage as evidenced by Premiums / Equity (Premiums / Surplus)
- Financial Leverage calculated mainly at a holding company level (with exception when an operating company has issued surplus notes)
 - Total Debt / Total Capitalization
- Double Leverage (Holding Company only):
 - Non-consolidated investment in subsidiaries / (non-consolidated common equity plus hybrid equity)
- Off-balance sheet liabilities such as operating leases, contingent debt obligations to joint ventures and unconsolidated subsidiaries, guarantees, and contingent liabilities such as potential litigation.

Capitalization	
Excellent – Capitalization is very strong, primarily composed of equity that has increased steadily over the years and is predominantly a result of internal cash flow generation. Low financial leverage and moderate double leverage. Limited use of off-balance vehicles for financing. Has well managed reserves with little historical volatility.	5
Strong – Capitalization is strong with the majority of capital being composed of equity and has demonstrated mainly an upward historic trend. Strong capitalization ratios and moderate financial leverage. Modest use of off-balance vehicles for financing. Reserves are adequate.	4
Good – Capitalization is mixed between debt and equity. Historically, capital tends to grow but exhibits large volatility. Leverage ratios are in line with the industry. Double leverage is still manageable. Some use of off-balance vehicles for financing. Some reserve deficiencies, however not material enough to erode capital significantly.	3
Fair – Capital is deteriorating. Double leverage ratios are somewhat high. Large portion of the capital is composed of debt which may have significant near term debt maturities. Company's leverage ratio is higher than its peers. Significant off-balance sheet commitments. Has a reserve deficiency that may erode the capital in near term.	2

Marginal – Capital is mainly composed of debt and the company has engaged in a significant number of debt restructurings. The company's leverage ratio and double leverage are very high. Weak capitalization ratios. Significant off-balance sheet commitments. Reserve deficiencies have eroded the capital base.	1
Weak – Capital is almost entirely composed of debt. Debt is currently being restructured. Weak capitalization and high leverage ratios.	0

Internal Facility Rating

Introduction

The IFR for a Counterparty using the Insurance Scorecard is assigned using the Ratings Driver Based Approach, Financial Institutions Form. This approach consists of increasing or decreasing the Base Reference Recovery Rate (BRRR, stated as a percentage value) by the cumulative percentage points (%pts) impact of the following IFR Ratings Drivers – the Jurisdiction Adjustment, an adjustment for residual asset values (Asset Evaluation), an adjustment for the likely Regulatory Response (if any), an adjustment for the relevant Seniority and Cushion, and the Complexity Adjustment – to determine the Proposed IFR by reference to the standard IFR Conversion Table.

The Base Reference Recovery Rate, the Jurisdiction Adjustment, the Complexity Adjustment, the Cushion and the IFR Conversion Table are further discussed in Appendix 14. This current Appendix covers the adjustments for asset values (Asset Evaluation), Regulatory Response and Seniority.

Asset Evaluation

Industry Distress

Industry membership in itself is not considered to be a primary driver of recovery rates. However, cet par, if an Industry is considered to be in distress then CRM believe this is likely to result in lower Industry wide recovery rates than otherwise expected (compared to the BRRR). Industry distress for Insurance Companies is initially proxied by reference to the “Industry Risk & Operating Environment” score in the ICR Ratings Driver section: the greater the exogenous threats facing all such Insurance Counterparties, the less value those Counterparties’ component assets would likely retain during a work out process.

Industry Distress	
ICR Industry Risk & Operating Environment	Adjustment to BRRR
Excellent, Strong, Good, Fair	Nil
Marginal	-5%pts
Weak	-10%pts

However, in order to reflect local or regional differences in the host country, or any other feature of the external environment that is not adequately reflected under the ICR section, the Analyst is entitled to reduce, but not increase, the score obtained from the ICR section based on Expert Judgment. For conservatism, CRM do not credit the BRRR for Insurance Counterparties with relatively lower exogenous threats.

Residual Asset Value

The bulk of assets held at Insurance Companies are a portfolio of financial assets and real/physical investment assets. Portfolio Theory indicates that the more diversified the assets and the higher the quality of the individual assets, the greater the expected value of those assets in future time periods i.e. the higher the residual value. Because the probability of default of an Insurance Company is also driven, at least in part, by the ongoing performance of its financial assets, there is also a partial correlation between the probability of default and the recoveries in the event of default. Residual Asset Value is therefore proxied by reference to the Investments & Liquidity score in the ICR Ratings Driver section. CRM believe that this driver is extremely important in systematically estimating the recoveries pertaining to Insurance Counterparties, and Analysts attribute a substantial increase in the recovery rate based on their view over Investments & Liquidity.

Residual Asset Value	
ICR Investments & Liquidity	Adjustment to BRRR
Excellent	+25%pts
Strong	+15%pts
Good	+5%pts
Fair	No adjustment
Marginal	-3%pts
Weak	-5%pts

Regulatory Response

CRM believe that certain Insurance Companies will benefit from a regulatory desire to minimize the impact of distress on the local financial system and economy. Regulatory action can take place during the deterioration in an Insurance Companies credit standing and/or after a distress event has occurred. CRM believe that Analyst can discriminate, ex ante, which Insurance Companies are likely to continue to materially benefit from regulatory action post-distress event, and that such regulatory action will have an incremental impact on the recovery rate for those certain Insurance Companies. This impact is considered to be in terms of both magnitude, direction and speed of recoveries.

An Insurance Company with a dominant regional, national and/or international footprint where failure would cause major disruption to the insured population, create a crisis of confidence in the insurance industry and functioning of the economy, and potentially disrupt the smooth functioning of the international insurance markets, qualifies for a Regulatory Response status of “Top Tier” and an adjustment factor of +10%pts. Non-qualifying Insurance Companies are not adjusted.

Because CRM also believe that regulatory action will seek to expedite the work out, Analysts are also entitled, though not required, to allocate “Top Tier” Insurance Companies to “Complexity = Low” regardless of the inherent complexity of the Counterparty.

Seniority

Seniority speaks to the level of an individual Facility in the priority of payments ordering in the event of a breakup, assuming that the absolute priority rule holds. If the Analyst has any reason to believe that the absolute priority rule will not hold then the Facility should be assigned to a lower, more appropriate, Seniority level. Whilst CRM do not believe that it is always certain that a senior creditor would be subordinated to insurance policy holders, this is the most conservative approach to establishing recovery rates. Therefore if the facility is covered by an insurance policy the Analyst assigns a higher recovery rate which is more akin to a senior secured recovery level. Generally facilities with Insurance Counterparties are at the Senior Unsecured level. Subordinated facilities are rare and may include, for example, swaps against subordinated funding. It is extremely rare to benefit from non-eligible collateral when dealing with Insurance Companies and therefore no “Senior

Secured” status is available for selection; if any Lehman Brothers Facilities have such a status then the Analyst should use the Override functionality to record the appropriate IFR.

Seniority	
	Adjustment to BRRR
Insurance Policy Holder	+30%pts
Senior Unsecured	No adjustment
Subordinated	-20%pts

Appendix 3 – Banks

Definition

Banks are financial intermediaries who are generally in the business of bringing savers and borrowers together. Banks take deposits from savers and make loans to borrowers. The object is to earn more interest income on its loans (and other interest bearing assets) than it pays out on interest expense on deposits and other borrowings. Banks also provide a number of other services for which they collect fees: payment processing via checking accounts, trust services, safety deposit boxes, etcetera. The ultimate goal is for the sum of its interest and non-interest to exceed the sum of its interest expense and overhead so that the bank can earn a profit. The success or failure of a banking institution is closely related to its financial structure – i.e. type, maturity, and risk of loans and investments relative to deposits and other funding sources.

Internal Credit Rating

Introduction

The bank scorecard brings together some of the key considerations associated with evaluating the creditworthiness of a bank. There are both qualitative and quantitative aspects that need evaluation. On the qualitative side, consideration needs to occur on the operating environment of the bank, the size, breath and depth of the bank franchise, and the extent of diversification of revenues and assets. Quantitative factors are also important in accessing the financial health of the bank. Specific focus points are capitalization levels, asset quality, liquidity, earnings, and the quality and track record of management. For banks that have achieved certain critical mass within a certain country, there may be an element of external support present. The scorecard allows for such an adjustment after the initial scorecard rating is generated.

ICR Rating Driver	Risk Weighting	Risk Weighting
Business & Management Evaluation	60%	
Operational Environment		20%
Franchise Size		25%
Business & Asset Diversification		10%
Management & Corporate Governance		5%
Financial Evaluation	40%	
Capital		10%
Asset Quality		10%
Earnings		10%
Liquidity		10%
Total	100%	100%

ICR Conversion Table

Rating Driver based ICR	Rating Drivers' Weighted Score	
	>	<=
iAAA	95	100
iAA	82	95
iA+	79	82
iA	73	79

iA-	67	73
iBBB+	64	67
iBBB	61	64
iBBB-	56	61
iBB+	51	56
iBB	48	51
iBB-	45	48
iB+	42	45
iB	39	42
iB-	36	39
iCCC	0	36

Business & Management Evaluation: Risk Weighting 60%

Each rating analysis begins with an assessment of the company's operating environment, which includes the strength and prospective performance of the economy, the structure and relative fragility of the financial system, confidence in the accounting framework, and the quality of banking supervision and regulation. A stable and predictable operating environment forms the underpinnings of sound credit assessment. The Analyst needs to identify the major exogenous risks, threats and challenges facing all members of the same industry sector. Particular attention is placed on where the industry lies from an economic cycle perspective (peak, trough, etc) as well as the current and prospective interest rate environment. As the majority of banks are highly regulated entities, a special evaluation needs to occur on the quality, speed and depth of the regulatory and supervisory framework within the respective country of domicile. In addition, a bank's market position determines a company's ability to withstand competitive pressures, including its share in key markets, product dominance and the ability to influence price. Finally, the assessment of management focuses on corporate strategy, risk tolerance and funding policies

Operational Environment: Risk Weighting 20%

The first Rating Driver involves identifying and assessing the possible risks and opportunities in a company's operating environment. The Rating Factors include those listed below; however, banks within the same country should generally have the same score as this factor should not reflect bank specific issues.

- Regulatory, Legal & Accounting Framework
 - State, national, international regulatory, and legislative framework, including current and potential initiatives
 - Regulatory structure; level and quality of supervision, and the degree of regulatory independence types of reporting by banks to the regulatory authorities. Actions authorities are empowered to take measures to avoid problems at banks and avert imminent bank failures; the track record of regulators in handling individual bank or systemic banking crises; recent attitude of regulators with regard to providing liquidity and solvency support to banks and other types of financial institutions, and expected changes, if any
 - Form of deposit insurance, if any
 - Government's philosophy of laissez faire or interventionism with respect to banks and the likely changes in this attitude
 - Process of deregulation, areas within the financial system that have already been deregulated, further steps expected, time frame for deregulatory process and expected impact on various market segments

- Quality and transparency of accounting and reporting systems and the quality of external auditing
- Strength and efficiency of country’s legal system.
- Industry Structure
 - The basic structure of the banking system, which includes the number and relative sizes of institutions and restrictions on geographic or product expansion
 - Proportion of finance in the economy that is intermediated through the banks; nonbank competitors in the market and the extent to which they pose a serious challenge to the banks in their role as intermediary in the economy
 - Depth of publicly traded capital markets and the trends in this area
 - Dynamics of inter- and intra-industry competition, barriers to entry, expectation of change, degree of disintermediation in industry
 - Consolidation trends in banking system, the number of banks and branches in relation to the population, and impediments such as labor laws that negatively impact the bank’s ability to reduce overheads
- Economic Environment
 - Size of the economy, the basis of the economy, and its vulnerabilities
 - Growth prospects for the economy and the rate of monetary and credit growth relative to economic growth
 - Dynamics of savings and investment in the economy; sensitivity to reversals of foreign portfolio investment
 - Structure and overall financial strength of the corporate and personal sectors
 - Openness of the economy, the extent to which its performance is correlated with that of neighboring countries and other trading partners, and the strength and cyclicity of trading partners’ economies
 - Typical business cycle: volatility of the economy as measured by the peak-to-trough variation in GDP; typical peak-to-trough variation in unemployment, asset prices (including real estate), and bankruptcies; structural changes in the economy that could cause peaks and troughs to change
 - Structural problems facing the economy, the correction of which may require policies that depress economic activity (e.g., structural fiscal deficits, structural current account deficits, structurally high inflation, a lack of international competitiveness in important sectors of the economy)
 - Constraints on policymakers’ ability to pursue appropriate countercyclical policies
 - The country’s political stability

Operational Environment	
Excellent – A rating of Excellent indicates a very predictable and stable operating environment. There is minimal vulnerability to economic, demographic, social and regulatory changes. Primary operations of the bank are based in a highly rated and developed country with political stability, depth of the capital markets, strong legal, accounting, regulatory and industry specific frameworks.	5
Strong – A rating of Strong indicates predictable and stable operating environment. Elements exist which have a remote chance of disrupting the current stable operating environment. These could include economic, demographic, social or regulatory changes. Primary operations of the bank are based in a highly rated and developed country with political stability, depth of capital markets, strong legal, accounting, regulatory and industry specific frameworks.	4

Good – A rating of Good is indicative of a current stable operating environment that at times becomes less stable and predictable. There is vulnerability to demographic, social and regulatory changes. The bank has primary operations based in a highly rated and developed country, but there exists possible elements of vulnerability in the political environment, economy, capital markets, legal, accounting, regulatory or other industry specific issues. Some exposure to emerging markets may exist.	3
Fair – A rating of Fair indicates that the operating environment has more characteristics of instability than stability. Demographic, social and regulatory changes may require restructuring of operations. The bank may have primary operations based in an emerging markets country or a developed country, but there exists clear elements of vulnerability in the economy, political environment, capital markets, legal, accounting, regulatory or other industry specific issues. Exposure to emerging markets exists, particularly to the higher rated, more stable emerging market countries.	2
Marginal – A rating of Marginal indicates that the operating environment is unpredictable and unstable. Bank operations are currently vulnerable to current issues in the economy, political environment, capital markets, legal, accounting, regulatory or other industry specific issues. In addition, social or demographic changes will likely further impact the bank’s operations over the near term. The bank has considerable exposure to emerging markets.	1
Weak – A rating of Weak indicates that the operating environment is highly unpredictable and unstable. There are clear material issues present in the economy, political environment, capital markets, legal, accounting, regulatory or other industry specific issues which make the bank’s credit profile highly vulnerable. Economic, demographic, social and regulatory changes will likely require restructuring of operations in the near term. The bank has significant exposure to emerging markets.	0

Franchise Size: Risk Weighting 25%

With Franchise Size, the Analyst is assessing the Counterparty’s relative size, business value, breadth and depth of operations, and its ability to withstand exogenous industry risks. Several factors determine a bank’s ability to withstand competitive pressure, including its share in key markets and the ability to influence price; even though the size of the chosen market should be a factor, both regional as well as international active banks can achieve maximum scores. For larger franchises that have achieved critical size, there likely exists significant franchise value. Key Rating Factors include

- Absolute size of bank in comparison to specific sector and overall market
- Bank’s market shares in key sectors or products and the size of those markets
- Degree of influence or pricing power as a result of the bank’s market position
- Vulnerability of their market position
- Does the bank have a competitive advantage and can it be defended?
- Perceived strength of the bank’s brand
- Type of distribution channels used?
- Is it part of national payments system
- Does the bank react to new threats and keep updating its product line?
- Expected reaction of depositors during times of stress, in a flight to quality, do we expect in- or outflow of deposits
- Any other idiosyncratic features

Franchise Size

Excellent – A rating of Excellent indicates that the bank has a dominant presence within the industry, commands top market share and has the ability to affect product pricing. The bank has achieved critical mass in its home country’s financial system and has a highly valuable and defensible business franchise.	5
Strong – A rating of Strong indicates that the bank has a strong presence within the industry, it is growing market share and has some ability to affect product pricing. The bank is nearly approaching critical mass within its home country’s financial system and has a valuable and defensible business franchise.	4
Good – A rating of Good indicates that the bank has an above average presence within the industry. Competitive pricing pressures do not allow the bank to have much influence to affect pricing but is able to compete effectively. The bank typically has a limited but still valuable business franchise.	3
Fair – A rating of Fair indicates that the bank has a below average presence within the industry. The bank has limited ability to affect product pricing due to competitive pricing pressures. The bank typically has a very limited business franchise with marginal value.	2
Marginal – A rating of Marginal is indicative of franchises that have very limited market presence or value. This typically restricts the bank’s ability to compete effectively thus making them highly susceptible to competitive and market pressures. The bank typically has a very limited or niche business whose geographic presence or business offerings are highly concentrated. While its current business model may be satisfactory, there are significant concerns about its medium- to long-term survival.	1
Weak – A rating of Weak indicates the bank has an insignificant presence in the market and its business model is highly vulnerable to competitive pressures. The bank typically has a very limited business or track record, and its short- to medium-term survival is of concern.	0

Business & Asset Diversification: Risk Weighting 10%

Business and Asset Diversification relates to the level of diversity of a bank’s revenue streams and earnings assets. The more diverse the revenue streams and earning assets, the higher likelihood that the bank will achieve relatively stable earnings through an economic cycle. While larger banks are typically more diversified than smaller ones, a smaller bank may achieve a high score if earning streams are well diversified and assets are not concentrated. In addition, a higher score may also be warranted for those banks whose main revenue streams or assets are not highly susceptible to economic or interest rate cycles (i.e. private wealth management banks, asset managers, trust & processors, etc). When assessing diversity of assets, particular attention is placed on the characteristics of the loan portfolio (i.e. loan type, customer base, economic sector, country, etc) and the quality of the securities portfolio. Heavy concentrations in any one particular lending area or revenue stream would warrant a lower score. Niche specialty lenders like credit card banks, mortgage banks, thrifts, building societies or asset backed lenders that offer monoline products would likely receive a lower rating. Many commercial or universal banks, small or large, that have a diversified loan and securities book with some non-interest income sources may warrant a middle of the scale rating. Higher ratings can be achieved by those with material non-interest income streams from non-lending business segments like brokerage, insurance, trust, custody, processing, etcetera. Geographic concentration of the bank’s business lines (local, regional, international, etc) and assets is also an important consideration in assessing diversification. Rating Factors include:

- Diversity of products offered and revenue business lines
- Diversity of customer base
- Geographical diversification of the bank’s business lines

- Vulnerability of main revenues streams from competitive or market forces
- Diversification of risk inherent in the bank's assets, including relative proportion of high risk vs. low risk assets
- Extent to which regional or international diversification adds real franchise value

Business & Asset Diversification	
Excellent – A rating of Excellent indicates that the bank has well diversified revenue streams and earning assets which provide relative earnings stability through most economic cycles. Non-interest income revenues are material and provide significant diversification to interest income. The bank's business presence is significant and most likely international in nature and benefits from a broad and stable customer base.	5
Strong – A rating of Strong indicates that the bank has diversified revenue streams and earning assets which provide relative earnings stability through most economic cycles. Non-interest income revenues are well established and help provide some diversification to interest income. The bank has good geographic or international presence.	4
Good – A rating of Good indicates that the bank has some concentrations in revenue streams or assets which may add volatility to earnings through most economic cycles. The loan book is diversified by loan type or location, but some concentrations exist. Non-interest income revenues are modest and do not provide meaningful diversification to interest income. The bank has an acceptable geographic presence.	3
Fair – A rating of Fair indicates that the bank has concentrations in revenue streams or assets which will likely lead to earnings volatility through most economic cycles. The loan book is typically concentrated by loan type or geographically. Non-interest income revenues are not material and do not provide meaningful diversification to interest income. The bank has limited geographic presence.	2
Marginal – A rating of Marginal indicates that the bank has high concentrations in revenue streams or assets that will clearly result to some earnings volatility through most economic cycles. The loan book is typically centered around one or two loan types with significant concentrations to a certain client base or geographic area. Non-interest income revenues are not material.	1
Weak – A rating of Weak indicates that the bank has overly concentrated revenue stream or asset base that will clearly have a material impact on earnings volatility through most economic cycles. The loan book is typically centered around one loan type with significant concentrations to a certain client base or geographic area. Non-interest income revenues are not material.	0

Management & Corporate Governance: Risk Weighting 5%

Assessment of management focuses on corporate strategy, risk tolerance, financial track record, and ownership. Significant credit is given for delivering on and maintaining previously articulated strategies and related financial projections.

Corporate governance criteria have risen in importance due to recent events regarding management fraud. Close review of a company's board of directors and their ability to remain independent are key as well as the integrity of the audit process. Particular importance is placed on ownership structures that are majority-controlled and family-owned. Whilst the Analyst is encouraged to review all aspects of the Counterparty's Management & Corporate Governance, the Analyst can choose to emphasize particular factors as being more pertinent than others when assessing the score for any individual Counterparty.

- Evaluation of corporate strategy and risk tolerance
 - Aggressive style dedicated to rapid growth that maximizes near-term earnings at the expense of future performance
 - Growth through acquisition and the type of financing
 - Size and degree of non-core operations
- Management tenure, turnaround, profile, experience and reputation
 - Management’s track record in terms of ability to deliver on past projections or maintaining previously articulated strategies
 - Financial track record of bank during current management tenure
 - Labor relations
- Corporate governance issues including:
 - Independence and effectiveness of board of directors; combined chairman & CEO
 - CEO style (e.g. autocracy; Nepotism; inter-connected boards)
 - Related-party transactions between the company and management/shareholders (including compensation and board overview)
 - Ownership structure (majority-controlled vs. privately or family-owned companies); does the owner (and its family) have a major role in management
 - Shareholder rights including loading voting rights, different share classes and other ownership prerogatives
 - Legal/regulatory structure and arrangements by which the public corporate entity exists; corporate structure; external market discipline
 - External communications: the transparency, timeliness and reliability of accounting and other public disclosures; information & emphases in the Annual Report
 - Choice of auditor and accounting policies in order to judge aggressiveness of accounting practices (including use of off-balance vehicles) and frequency of restated results & changes in accounting policies; emphasis on proforma statements and company preferred ratios
- Ownership profile
 - Degree of government ownership within the banking system
 - Competition of public sector vs. private sector banks; how does the government involvement affect the banking system and competitive dynamics
 - Degree of bank ownership by corporate groups or individuals; are there advantages and disadvantages of or dangers stemming from these relationships?

Management & Corporate Governance	
Excellent – Management is highly experienced, well diversified and has a consistent strategy which they have been able to achieve. Projections and earnings guidance have been reliable. Acquisitions are properly motivated and conservatively funded. Company has limited appetite for acquisitions. Most board members are independent and the company's audit process has integrity. Limited amount of restructurings or accounting restatements. Ownership structure ensures appropriate oversight.	5
Strong – Management is well seasoned with many years of experience in achieving its goals with limited restructurings. Company has modest acquisition appetite and achieves its growth internally or if externally, through stock acquisitions. Many of the directors are independent and financial reporting process is of good quality. Restructuring charges and financial restatements are limited with minimal impact on past earnings.	4

Good – Management has average level of experience. Projections and earnings guidance have occasionally not been accurate. The company has been or has indicated that it will make acquisitions. Financial structure has been modest but the company may engage in leveraging through stock repurchase or dividends (possibly through spin-offs). Company has experienced some attrition in senior management. A few board members are independent and may not be represented on the audit committee. Company has used off-balance vehicles to gain liquidity.	3
Fair – Management is relatively new. On occasion required restructurings due to change in business strategy and has had several financial restatements. Aggressive acquisition policy (through cash) used in order to generate growth. Credit Agreement amendments required due to covenant defaults. Minimal representation of independent directors on the board. Financial track record is somewhat erratic due to management strategic decisions.	2
Marginal – Management has minimal business background and has experienced significant turnover. Lack of consistent business plan which has caused significant restructuring costs. Several substantive financial restatements which may also cause the company to postpone delivery of its financial statements. Financial track record has been very erratic due to poor management strategic decisions.	1
Weak – Management has questionable practices and has been reportedly under investigation for fraud. Lack of proper financial disclosure perhaps including a qualified audit opinion. Financial track record has been highly erratic due to poor management strategic decisions.	0

Financial Evaluation: Risk Weighting 40%

The financial evaluation reviews and assesses the bank’s financial structure, and establishes how successful the bank is in executing its operating and financing policies. Analysts analyze four strategic areas of the bank’s balance sheet and profit & loss statements that provide insight into the company’s financial strength and flexibility. While absolute levels of ratios and trends are important, it is useful to consider these aspects in the context of the Bank’s peers within its own market and across geographic borders.

Capital: Risk Weighting 10%

As banks are generally highly leveraged entities, the analysis of its capital base is a key business aspect from an economic point-of-view, but it is also a key focus of the regulator. While the absolute amount of its capital is an important starting point, the relative size to the bank’s risk weighted assets, the quality and maturity profile of Tier I and II capital are important considerations as well.

- Capitalization & Leverage
 - Capital composition. Quality of capital: levels of common equity, preferred stock, convertibles, subordinated debt, perpetual debt, minority interests, goodwill and other intangibles, revalued assets, unrealized capital gains, loan loss reserves in excess of probable losses, and other types of quasi-equity. If a holding company structure is involved, level of double leverage
 - Comparison of capital with perceived level of risk in institution’s business: BIS risk-weighted assets adjusted for high credit risk assets (e.g. equities or specific types of lending) or market risk activities
 - Bank’s capital position with respect to domestic capital requirements and BIS requirements
 - Dividend payout ratio, internal growth rate of capital

- Absolute size of bank's capital base and its ability to absorb extraordinary, unexpected losses that could arise, given the bank's business mix
 - Ability to tap external sources of capital and long-term funding. Bank's market capitalization compared with book value
 - Management's philosophy regarding risk asset and loan leveraging of its capital base, and capital projections.
- Financial Flexibility & Capital Access
 - Ability to raise various forms of capital from public or private sources, generally, and in a difficult environment
 - Internal reserves that could be used to cover unexpected losses; e.g. franchise value of discreet businesses, assets where the market value is significantly greater than the book value, ability to sell, likely value in stressed situations

Capital	
Excellent – A rating of Excellent indicates that the amount and the quality of the bank's capital are excellent. The bank maintains more than adequate capital to support the risk characteristics of business lines. The capitalization of the bank provides excellent cushion to absorb unanticipated losses arising from business activities. Generally, the bank's capital ratios compare favorably with the peer group averages. The bank's risk-based capital ratios are significantly higher than the minimum required by the home country regulator.	5
Strong – A rating of Strong indicates that the bank maintains a strong capital base to support the risk characteristics of the business lines. The capitalization of the bank provides a good cushion to absorb unanticipated losses arising from business activities. Generally, the bank's capital ratios compare favorably with the peer group averages. The bank's risk-based capital ratios are well above the minimum required by the home country regulator.	4
Good – A rating of Good indicates that the bank maintains a good capital base to support the risk characteristics of the business lines. The capitalization of the bank provides for a cushion to absorb some unanticipated losses arising from business activities. Generally, the bank's capital ratios are in-line with peer group averages. The bank's risk-based capital ratios are above the minimum required by the home country regulator.	3
Fair – A rating of Fair indicates that the bank maintains lower than average levels of capital to ensure support the risk characteristics of the business lines. There is a change that these lower capitalization levels may not provide adequate cushion to absorb unanticipated losses arising from business activities. The capital position could quickly become poor (rating 1) in the event of negative factors, such as asset deterioration or poor economic conditions. Generally, the bank's capital ratios are below peer group averages. The bank's risk-based capital ratios barely meet the minimum required by the home country regulator.	2
Marginal – A rating of Marginal indicates that the capital level is significantly below the amount needed to ensure support for the risk characteristics of the business lines. If capital levels are not rectified, this weakness of the institution threatens the solvency of the bank forcing regulators to action. Generally, the bank's capital ratios are well below peer group averages. The bank's regulatory capital ratios are below the minimum required by the home country regulator. Regulatory corrective action may be underway.	1
Weak – A rating of Weak indicates that the level of capital of the bank is critically deficient. The level of the bank's capital position threatens the survivability of the bank. The bank's regulatory capital ratios are well below	0

the minimum required by the home country regulator and formal regulatory corrective action is being taken.	
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Asset Quality: Risk Weighting 10%

Asset quality in its narrow definition highlights the relative or absolute amount of the bank's unimpaired assets, i.e. performing loans and other owned assets. However a broader analysis also considers potential future asset quality based on criteria such as loan growth rate (how seasoned the loan portfolio is), geographic and industry diversification, any borrower concentrations and available collateral. Asset quality accounting helps reveal whether management is aggressive or conservative in recognizing non-performing loans (NPLs).

- NPLs and Reserve Levels
 - Problem loans: large problem-credit exposures, levels in and changes of nonperforming assets, past-due loans, restructured loans and other problem-asset categories; and expected future trends
 - Loan loss reserves, broken down by type, such as general and specific, reserves against on- and off balance sheet exposures, taxed and untaxed; reconciliation of each type of loan loss reserve over the past five years, showing new provisions, liquidations of provisions, charge-offs and recoveries
 - Reserving policy and adequacy

- Risk Structure of Earning Assets
 - Structure of balance sheet, including relative proportion in different low-credit risk assets (e.g., government bills or interbank deposits) compared with higher-risk assets (e.g., loans or equities)
 - Fixed-income securities (breakdown by type, largest positions, and market value and maturity structure)
 - Equity securities (breakdown by economic sector, largest exposures, proportion of investment portfolio relating to previous underwriting positions, investment strategy, book value compared with market value)
 - Credit portfolio broken down by maturity, loan type, collateral, customer base, economic sector, size, currency, and country

Asset Quality	
Excellent – A rating of Excellent indicates that the bank maintains excellent asset quality throughout the bank. Criticized and nonperforming assets are at minimal levels. There is no weakness in asset quality at this rating. Credit risk across the organization is commensurate with management's abilities and modest in relation to credit risk management practices. In general, asset quality ratios are better than the peer group averages.	5
Strong – A rating of Strong indicates that the bank maintains sound asset quality throughout the bank. Criticized and nonperforming assets are at minimal levels and any weakness can be remedied immediately without any problems. Credit risk across the organization is commensurate with management's abilities and generally modest in relation to credit risk management practices. In general, asset quality ratios compare favorably with the peer group averages.	4
Good – A rating of Good indicates that the asset quality across the majority of the bank is satisfactory. Credit risk exposure across the bank is manageable. Criticized and nonperforming assets are at manageable levels and any identified weakness is correctable in the normal course of business. In general, asset quality ratios are comparable with peer group averages.	3

<p>Fair – A rating of Fair indicates average to below average asset quality across the majority of the bank. The bank may face a further decrease in overall quality of its assets. The bank maybe beginning to experience an increase in credit risk exposure that has not been met reserved nor may there be appropriate improvement in risk management practices. In general, asset quality ratios meet or are slightly below peer group averages. Criticized and nonperforming loans are marginal, and if fully written off, would lower the bank’s capitalization to levels that are just above the minimum required by the home country regulator.</p>	2
<p>Marginal – A rating of Marginal indicates that the bank’s asset quality is deficient. The bank is experiencing increased credit risk exposure that it is not equipped to handle with current risk management practices. Charge offs and provisions may be insufficient to stem the weakening asset quality. The level of problem assets and credit risks subjects the bank to potential losses that may threaten its short- to medium-term survival. In general, asset quality ratios are well below peer group averages. Criticized and nonperforming loans are at material levels, and if fully written off, would wipe out a significant portion of the bank’s equity base and result in capitalization levels that are below the minimum required by the home country regulator.</p>	1
<p>Weak – A rating of Weak indicates that the bank’s asset quality is critically deficient and the bank’s survival is questionable. Criticized and nonperforming loans are at high levels, and if fully written off, would wipe out most if not all of the bank’s equity and result in capitalization levels that are well below the minimum required by the home country regulator and may render the bank technically insolvent.</p>	0

Earnings: Risk Weighting 10%

The bank’s profitability and its ability to generate recurring core earnings are essential for health and well being of a banking franchise. This also helps grow the business and build it reserves and capital base. Important are sustainable earning sources with a limited volatility and diverse revenue streams. Losses can negatively affect the bank’s capital base and lead, in the most extreme cases, to regulatory actions.

- Net interest income: margin trends and ability to maintain volume
- Non interest income: diversity and sustainability of other income sources and growth potential
- Operating expenses: level and trend of overhead relative to the company’s business mix and distribution network, degree of automation in comparison to peers’; ability of earnings to meet current and future needs; ability to reduce staff / level of unionization
- Loan loss provision (current level, past volatility, and ability to absorb future requirements)
- Net operating income analysis (level and trend)
- Quality of earnings: proportion of income recognized as core earnings, proportion of earnings from trading activities, ability to price risk into various products, actual return on the perceived risk in the book, transparency and conduct of accounting practice
- Impact of extraordinary gains and/or charges
- Tax position: management’s philosophy toward tax payment position and cushion, including historical and future use of net operating loss carrybacks and carryforwards, other strategies that affect tax position
- Impact of inflation on earnings, return on equity versus the reporting period’s inflation rate
- Earnings outlook, year-to-date budget versus actual, projections for following year and medium-term plan

Earnings	
Excellent – A rating of Excellent indicates that the quantity and quality of the bank’s earnings over time are excellent. The bank has well diverse sources of earnings and exhibits consistent earnings growth with small volatility over time. The quality of earnings is excellent with minimal to no one-time items. Generally, banks assigned “Excellent” have earnings compare very favorably with the peer group averages.	5
Strong – A rating of Strong indicates that the quantity and the quality of the bank’s earnings over time are sound, but not excellent. The diversity of earnings sources is good. The bank exhibits consistent earnings, but there is some volatility of earnings over time with small impact from one-time items. Generally, banks assigned “Strong” have earnings that compare favorably with the peer group averages.	4
Good – A rating of Good indicates that the earnings of the bank are satisfactory. The bank exhibits fairly consistent earnings, but volatility is an issue. Moderate one-time items may affect earnings. Generally, banks assigned “Good” have earnings that are in line with the peer group averages.	3
Fair – A rating of Fair indicates that the bank’s earnings are below satisfactory. There is very little evidence of diverse earnings sources. The bank exhibits volatile earnings due to economic conditions and significant one-time item charges. Earnings may fall substantially from the previous year and are trending down. Generally, banks assigned “Fair” have earnings below peer group averages.	2
Marginal – A rating of Marginal indicates that the bank’s earnings are currently negatively impacted. Earnings have been erratic or volatile, with intermittent losses or substantial drops in earnings from the previous year or quarter. Generally, banks assigned “Marginal” have earnings well below peer group averages.	1
Weak – A rating of Weak indicates that the bank is consistently experiencing losses. Such losses represent a distinct threat to the bank’s solvency through erosion of its capital base. Losses will need to stop and/or capital contributions will have to take place in order for the bank to continue to operate.	0

Liquidity: Risk Weighting 10%

The liquidity of a bank and their ability to meet withdrawal requests from their depositors is a key aspect of the banking business; therefore analyzing maturity mismatches, the bank’s access to other funding sources and their liquidity of the corresponding assets are crucial elements in maintaining a good liquidity. Analysis includes an assessment of the bank’s ability to liquefy assets in order to meet funding payments. Rating Factors include:

- Management’s philosophy regarding asset and liability management and balance sheet structure
- Levels of interest rate, foreign exchange, and equity risks in the balance sheet
- Role of Treasury Department and objectives and risk appetite
- Reasons for structural risk: legal restrictions, regulatory requirements, limitations of local funding or hedging markets, or position-taking
- Use of non cash market instruments, such as futures, forwards, and swaps
- Past and future position-taking and balance sheet flexibility
- Composition of bank’s funding (core retail compared with other retail, semiprofessional, and professional markets); term rather than demand deposits
- Member of a Deposit insurance scheme and/or part of national payments system
- Quality and reach of the distribution channels

- Diversity of funding sources, such as deposits broken down by geography and size, access to and importance in local and national capital and money markets
- Flow of funds (net deposit flows, deposit maturities, stability of funding)
- Asset liquidity, which includes short-term deposits and securities, long-term marketable securities, extent of pledged assets, ability to sell or securitize loans; liquidity facilities at central bank and other sources of asset liquidity; extent of liquid assets compared to likely sources of short term drain on the bank
- Hedging strategies
- How traders and desk heads monitor positions and how the system interacts with overall risk management system

Liquidity	
Excellent – A rating of Excellent indicates the bank maintains excellent liquidity levels and well developed funds management practices. The bank has diverse sources of liquidity and has excellent and proven access to capital markets. The bank has reliable access and sufficient sources of funds on favorable terms to meet present and anticipated liquidity needs.	5
Strong – A rating of Strong indicates the bank maintains sound liquidity levels and funds management practices. The bank has access to sufficient sources of funds on acceptable terms to meet present and anticipated liquidity needs. The bank has proven access to the capital markets to meet liquidity needs.	4
Good – A rating of Good indicates the bank maintains satisfactory liquidity levels and funds management practices. The bank has access to the capital markets to meet liquidity needs. Modest weakness in funds management practices may be evident, but is correctable in the normal course of business.	3
Fair – A rating of Fair indicates the liquidity levels or funds management practices of the bank are in need of improvement; however, any identified weaknesses in liquidity levels or funds management practices are correctable in the normal course of business. The bank may lack ready access to funds on reasonable terms to the capital markets, but continues to have access.	2
Marginal – A rating of Marginal indicates that the bank lacks ready access to funds on reasonable terms in the capital markets, but continues to have access. The bank may show evidence of weaknesses in funds management practices and may not be able to obtain a sufficient volume of funds to meet liquidity needs. Asset sales might be required to reduce debt burden or cover obligations. The low liquidity of the bank may threaten the viability of the bank.	1
Weak – A rating of Weak indicates the liquidity levels or funds management of the bank are critically deficient. The bank has no access to the capital markets. The prospects are small that the bank will be able to cover its short-term obligations. Survivability of the bank is in question and external financial assistance may be necessary.	0

Government Implied Support Adjustment

A bank's core role is to intermediate in their domestic economy's flow of funds, and because of this key feature the direct impact of a bank failure on a national economy could be substantial if the bank played a material role in the flow of funds. For example, the failure of a sizeable bank could:

- Cause enormous disruption to the national payments system potentially jeopardizing the integrity of all payments passing through the system as well as leading to substantial unemployment and huge insolvency costs

- Loss of wealth for depositors, with a loss of wealth for tax payers if a Government deposit guarantee scheme is in operation
- The potential knock on impact on all other domestic banks i.e. systemic risk – the risk that the entire banking system collapses. The nightmare scenario is that a domestic crisis not only decimates the economic functioning of a single country but is also transmitted across borders leading to global issues.

Even the rumor of a bank's potential failure is often sufficient to cause actual failure as depositors seek to withdraw funds whilst the bank is unable to liquidate loan book assets.

Regulatory interest has grown hand-in-hand with the (a) increased size of individual institutions, (b) the increased linkages between these institutions, and (c) the increased competitive behavior within the global banking industry leading to higher risk and lower returns. As creditors we primarily look to a bank's Management to ensure an appropriate risk and return profile, but we also look to Regulators and Accountants to ensure that there is appropriate independent oversight and reporting. Nonetheless, the banking industry has such importance that were a bank to find itself in financial difficulties then Government intervention might be expected to stabilize the situation, either directly by making funds available or indirectly by assuring depositors and/or arranging for the bank's business to be assumed by another banking entity. The key considerations here are

- How important is the bank? What are the implications of failure?
- Are the relevant authorities willing and able to intervene to prevent failure?

The state in question must clearly be able to monitor and identify failing banks, and finance and deliver such support.

CRM deem this to represent Government Implied Support and we cater for this by making an adjustment to the bank's intrinsic rating i.e. this is an overlay adjustment to the Scorecard Output. This adjustment is made before the Analyst caps the rating at the level of the Sovereign. The final, general Override capacity remains on the Scorecard.

Category 1: Intervention is considered Most Likely

A qualifying bank that is located in a state or jurisdiction that has a known policy of supporting banking institutions and/or the indigenous banking system may be rated up to the level of the Sovereign Rating. A "Known" policy is defined as explicitly stated and/or explicitly demonstrated; demonstrated is defined as both direct support to individual institutions or actively responding to a stressed banking environment by creating conditions within the banking system that ensure the integrity of the system i.e. prevention of systemic risk. The Analyst is confident that such support would reoccur in times of future stress e.g. the political and/or social environment has not altered.

A qualifying bank is defined as a bank with sufficient domestic footprint that failure would create significant, potentially critical, direct and indirect issues.

Category 2: Intervention is considered Probable

A qualifying bank that is located in a state or jurisdiction where support has not been explicitly stated or demonstrated, perhaps because such support has not been called upon under the current political and social environment but where the Analyst believes such support would be forthcoming if required, may be rated up to six notches above its Rating Driver based ICR albeit capped at one notch below the level of the Sovereign Rating.

A qualifying bank is defined as a bank with sufficient domestic footprint that failure would create significant direct and indirect issues.

(Note that a Category 2 adjustment can only improve a Rating Driver based ICR. A qualifying bank that is already rated at the same level as the Sovereign can remain at that level and is not subject to a one notch downward revision. Note that a qualifying bank with an Rating Driver based ICR that is already higher than its host Sovereign Rating will remain capped to its Sovereign rating, but is not subject to further downward revision based on Category 2 membership.)

Category 3: Intervention is considered Possible

A qualifying bank that is located in a state or jurisdiction where support has not been explicitly stated or demonstrated, perhaps because such support has not been called upon under the current political and social environment but where the Analyst believes such support would be forthcoming if required, may be rated up to three notches above its Rating Driver based ICR capped at two notches below the level of the Sovereign Rating.

The key difference between a bank that qualifies for “Probable” and a bank that qualifies for “Possible” is that the direct and indirect issues are significant but to a lesser degree. For example, a “Possible” bank may be regional rather than national, and may not be a direct member of the national payments system. Indeed, support may only be anticipated for systemic reasons rather than standalone impact reasons.

(Note that a Category 3 adjustment can only improve a Rating Driver based ICR. A qualifying bank that has a Rating Driver based ICR at, or one notch lower than, the host Sovereign Rating can remain at that rating and is not subject to downward revision to two notches below the Sovereign Rating. Note that a qualifying bank that has a Rating Driver based ICR higher than its Sovereign Rating will be capped at its Sovereign Rating, but is not subject to further downward revision based on Category 3 membership.)

Category 4: Intervention is considered Doubtful

No adjustment shall be made for a Bank that does not qualify under Categories 1, 2 or 3.

Internal Facility Rating

Introduction

The IFR for a Counterparty using the Bank Scorecard is assigned using the Ratings Driver Based Approach, Financial Institutions Form. This approach consists of increasing or decreasing the Base Reference Recovery Rate (BRRR, stated as a percentage value) by the cumulative percentage points (%pts) impact of the following IFR Ratings Drivers – the Jurisdiction Adjustment, an adjustment for residual asset values (Asset Evaluation), an adjustment for the likely Regulatory Response (if any), an adjustment for the relevant Seniority and Cushion, and the Complexity Adjustment – to determine the Proposed IFR by reference to the standard IFR Conversion Table.

The Base Reference Recovery Rate, the Jurisdiction Adjustment, the Complexity Adjustment, the Cushion and the IFR Conversion Table are further discussed in Appendix 14. This current Appendix covers the adjustments for asset values (Asset Evaluation), Regulatory Response and Seniority.

Asset Evaluation

This is broken out into two separate inputs

Industry Distress

Industry membership in itself is not considered to be a primary driver of recovery rates. However, ceteris paribus, if an Industry is considered to be in distress then CRM believe this is likely to result in lower Industry wide recovery rates than otherwise expected (compared to the BRRR). Industry distress for Banks is initially proxied by reference to the “Operational Environment” score in the ICR Ratings Driver section: the greater the exogenous threats facing all such Banking Counterparties, the less value those Counterparties’ component assets would likely retain during a work out process.

Industry Distress	
ICR Operational Environment	Adjustment to BRRR
Excellent, Strong, Good, Fair	No Adjustment
Marginal	-5%pts
Weak	-10%pts

However, in order to reflect local or regional differences in the host country, or any other feature of the external environment that is not adequately reflected under the ICR section, the Analyst is entitled to reduce, but not increase, the score obtained from the ICR section based on Expert Judgment. For conservatism, CRM do not credit the BRRR for Banks with relatively lower exogenous threats.

Residual Asset Value

The bulk of assets held at Banks are a portfolio of financial assets split between banking book and trading book. Portfolio Theory indicates that the more diversified the assets and the higher the quality of the individual assets, the greater the expected value of those assets in future time periods i.e. the higher the residual value. Because the probability of default of a Bank is also driven, at least in part, by the ongoing performance of its financial assets, there is also a partial correlation between the probability of default and the recoveries in the event of default. Residual Asset Value is therefore proxied by reference to the Asset Quality score in the ICR Ratings Driver section. CRM believe that this driver is extremely important in systematically estimating the recoveries pertaining to Bank Counterparties, and the Analyst may attribute a substantial increase in the recovery rate based on their view over Asset Quality.

Residual Asset Value	
ICR Asset Quality	Adjustment to BRRR
Excellent	+25%pts
Strong	+15%pts
Good	+5%pts
Fair	No Adjustment
Marginal	-3%pts
Weak	-5%pts

Regulatory Response

CRM believe that certain Banks will benefit from a regulatory desire to minimize the impact of distress on the local financial system and economy. Regulatory action can take place during the deterioration in a Bank’s credit standing and/or after a distress event has occurred. CRM believe that Analyst can discriminate, ex ante, which Banks are likely to continue to materially benefit from regulatory action post-distress event, and that such regulatory action will have an incremental impact on the recovery rate for those certain Banks. This impact is considered to be in terms of magnitude, direction and speed of recoveries.

A Bank with a dominant regional, national and/or international footprint where failure would cause major disruption to the depositing population, create a crisis of confidence in the banking industry and functioning of the economy, and potentially disrupt the smooth functioning of the international banking markets, qualifies for a Regulatory Response status of “Top Tier” and an adjustment factor of +10%pts. Generally this status will only be assigned to Banks rating highly on both the Franchise and the Government Implied Support Rating Drivers in the ICR section. Non-qualifying Banks are not adjusted.

Because CRM also believe that regulatory action will seek to expedite the work out, Analysts are also entitled, though not required, to allocate “Top Tier” Banks to “Complexity = Low” regardless of the inherent complexity of the Counterparty.

Seniority

Seniority speaks to the level of an individual Facility in the priority of payments ordering in the event of a breakup, assuming that the absolute priority rule holds. If the Analyst has any reason to believe that the absolute priority rule will not hold then the Facility should be assigned to a lower, more appropriate, Seniority level. Whilst CRM do not believe that it is always certain that a senior creditor would be subordinated to depositors, this is the most conservative approach to establishing recovery rates. Generally facilities with Banking Counterparties are at the Senior Unsecured level. Subordinated facilities are rare and may include, for example, swaps against subordinated funding. Analysts are entitled to use the Subordinated level in cases where, despite facilities being at the Senior Unsecured level, the vast majority of the Counterparty’s assets are encumbered by senior secured claimants (e.g. European covered bonds issuers) hence economically subordinating Lehman Brothers. It is extremely rare to benefit from non-eligible collateral when dealing with Banks and therefore no “Senior Secured” status is available for selection; if any Lehman Brothers Facilities have such a status then the Analyst should use the Override functionality to record the appropriate IFR.

Seniority	
	Adjustment to BRRR
Senior Unsecured	No Adjustment
Subordinated	-20%pts

Appendix 4 – Hedge Funds

Definition

Hedge Funds are loosely regulated private investment vehicles for wealthy individual and institutional investors. Professional investment advisors manage these vehicles, which are typically organized as limited partnerships or offshore corporations, under a fee structure that usually includes both a capital-based fixed fee and a performance-based incentive fee. Many Hedge Funds invest in both cash and derivative instruments, take both long and short positions and employ leverage, but these characteristics by themselves do not necessarily distinguish hedge funds from other types of investment vehicles. Funds-of-hedge-funds, feeder funds and other legal structures serving as conduits for investments in underlying Hedge Funds are also considered Hedge Funds for purposes of this policy.

The types of Counterparties listed below are specifically excluded from the scope of this policy:

- Highly regulated investment fund structures (e.g. 1940 Act Funds, European UCITS etcetera)
- Unleveraged accounts trading through registered investment advisors
- Venture capital funds, private equity funds and real estate funds, including REITs
- Asset-backed SPVs and CDOs/CLOs
- Individuals and personal holding companies

Introduction

Given the unique characteristics of hedge funds, the transient nature of their risk positions and the lack of public rating benchmarks, the credit rating process is inherently imprecise and involves a high degree of subjective assessment. As such, the model uses only four quantitative Rating Drivers (each related to the size and experience of the fund or its manager). All other Rating Drivers are qualitatively scored.

While the risk profile of separate funds under common management can present varying degrees of risk, the quality and experience of the manager provides a certain level of consistency across funds. For example, if an experienced and highly reputable manager established a new fund with USD50 million of capital, CRM will generally consider this fund to have stronger credit characteristics than a commensurately sized fund set up by a novice manager. Accordingly, the model attributes 60% of the final score to general drivers relating to the investment manager, with the remaining 40% attributed to fund-specific factors.

ICR Rating Driver	Risk Weighting	Risk Weighting
Fund Specific Drivers	40%	
Net Asset Value		5%
Number of Years in Existence		3%
Investment Strategy Risk Profile		7%
Leverage Relative to Investment Strategy		7%
Asset Quality & Liquidity		7%
Performance		5%
Growth & Stability of Capital Base		6%
General Drivers Relating to Manager	60%	
Assets Under Management		7%
Number of Years Experience as an Independent Manager		8%
Reputation & Management Depth		10%
Quality of Risk Management Framework		10%

Record During Various Market Conditions & Disruptions		12%
Operational Infrastructure & Support		8%
Transparency		5%
Total	100%	100%

ICR Conversion Table

Rating Driver based ICR	Rating Drivers' Weighted Score	
	>	<=
iBBB*	90	100
iBBB-	85	90
iBB+	80	85
iBB	70	80
iBB-	65	70
iB+	60	65
iB	55	60
iB-	50	55
iCCC	0	50

* iBBB is the highest rating available to hedge funds

Fund-Specific Drivers: Risk Weighting 40%

Net Asset Value (NAV): Risk Weighting 5%

While large hedge funds can certainly experience problems, fund size is generally considered to be positively correlated with credit quality. Accordingly, fund size, as measured by absolute NAV, is one of the primary model drivers. Note that the overall amount of assets under management with the manager is addressed separately.

Additional guidance:

- Analyst should use most recent NAV available
- For new funds, pro forma NAV may be used; however, the Analyst should follow-up to ensure that actual starting NAV is consistent with that assumed in the rating process. When possible, an inception balance sheet or account opening statement should be requested from the administrator or prime broker.

Net Asset Value	
>= USD2 billion	5
>= USD1 billion	4
>= USD500 million	3
>= USD250 million	2
>= USD100 million	1
< USD100 million	0

Number of Years in Existence: Risk Weighting 3%

Like NAV, experience is considered to be positively correlated with credit strength with newer funds presenting greater risk than more seasoned funds, even if they are sponsored by an experienced manager. Manager experience is scored separately.

Number of Years in Existence	
>= 10 years	5
>= 7 years	4
>= 5 years	3
>= 3 years	2
>= 1 year	1
< 1 year	0

Investment Strategy Risk Profile: Risk Weighting 7%

This Rating Driver assigns relative levels of risk to different investment strategies. In general, funds diversified across multiple managers and/or multiple strategies are considered less volatile and less likely to default than funds concentrated in one or a few investment strategies. Less diversified and/or more volatile funds concentrated in strategies that are particularly vulnerable to event risk, emerging markets or periodic illiquidity are considered more risky than funds trading mostly in more stable and liquid markets.

- Analysts should use their discretion in determining whether a multi-strategy fund is diversified enough to warrant the scores attributable to diversified funds. For example, a fund that deploys capital between fixed income arbitrage and convertible arbitrage portfolios might not warrant a diversified rating
- Analysts should use their discretion in selecting the most appropriate classification for non-diversified multi-strategy funds and other funds whose investment strategies are not clearly identified below
- Analysts should determine whether the asset classes and strategies employed within a given fund are consistent with the manager's core expertise. The potential success of these strategies should also be considered by assessing how the key performance drivers may be affected by the current macro-economic outlook as well as specific, relevant market conditions (e.g., level of merger & restructuring activity, volume of new issuances, slowing mortgage prepayments, low equity volatility, etcetera).

Investment Strategy Risk Profile	
Excellent – Well diversified multi-strategy or multi-manager (Funds of Funds) that capitalize on opportunities arising in several developed markets and through various economic cycles. Diverse revenue streams generate consistent and steady returns.	5
Strong – Market neutral or relative value strategies that exhibit no or only modest correlation to overall direction of markets and have demonstrated limited downside potential. Positions are reasonably scalable. Long/short equity, statistical arbitrage and other equity market neutral strategies.	4
Good – Market neutral or value oriented strategies. Moderate market exposures assumed. Portfolio partially hedged with net long bias. Distressed, convertible arbitrage, risk arbitrage and other event-driven strategies, fixed income arbitrage.	3
Fair – Directional portfolios with some concentrations or considerable potential correlations in unrelated positions, however underlying markets are relatively liquid and strategies are highly scalable. Global macro.	2
Marginal – Concentrated in a relatively small set of positions with significant exposure to event/systemic risks or dominated by complex, highly structured transactions. Trades in markets with unstable supply/demand dynamics. Returns very sensitive to underlying assumptions. Mortgage arbitrage, credit	1

arbitrage.	
Weak – Concentrated in one strategy or in investments that can be characterized as speculative, extremely volatile or highly susceptible to event/systemic risk. Strategies may evolve opportunistically to hit aggressive return targets. Emerging markets, dedicated shorts.	0

Leverage Relative to Investment Strategy: Risk Weighting 7%

Since the Scorecard has already captured the broad risk differences between investment strategies above, this Rating Driver is intended to assess leverage on a relative basis within an investment strategy.

- The calculation of leverage considered may vary by strategy.
- It may be difficult to assess true leverage for funds that are active in derivatives.

Leverage Relative to Investment Strategy	
Excellent – Nominal or no leverage	5
Strong – Low compared to other funds in its strategy	4
Good – Typical among funds with comparable investment strategies	3
Fair – Above average compared to other funds in its investment strategy	2
Marginal – Materially higher than peers	1
Weak – Very high relative to peers and poses a serious concern	0

Asset Quality & Liquidity: Risk Weighting 7%

In assessing asset quality and liquidity, Rating Factors include:

- Credit quality and volatility of the asset base
- The size and depth of markets in which the fund trades
- Vulnerability of the traded markets to periods of illiquidity
- Concentrations in positions or markets such that they could not be liquidated promptly without material loss
- Whether positions are marked using reliable third-party sources
- Liquidity management philosophy and framework.
- Margin commitments and access to lines of credit or other back-up liquidity sources
- Ability and perceived willingness of sponsor to provide additional capital if required

Asset Quality & Liquidity	
Excellent – highly diversified portfolio with commodity instruments traded in G7 markets. Portfolio could be readily liquidated within 1-2 days under normal market conditions with minimal slippage. Minimum liquidity reserved based on historical or simulated stress analysis. Access to committed funding.	5
Strong – Majority of the portfolio can be valued daily by reference to screen prices. Diversified Counterparty base. Prudent asset/liability matching.	4
Good – Largest position represents less than 5% of portfolio and not significantly correlated to other investments. There are numerous investor classes in the underlying securities and OTC trades are readily quoted by several leading dealers.	3
Fair – Prices quoted by few market makers or activity is dominated by a narrow issuer or investor base. Prone to illiquidity during periods of market stress.	2
Marginal – limited public information or availability on underlying assets. Trading is by appointment or subject to wide bid/ask spreads and significant	1

price gapping.	
Weak – Significant concentrations relative to size of the fund or trading volume of issue. Portfolio marked by internal models or on fair valuation basis. Overall funding is provided on demand basis.	0

Performance: Risk Weighting 5%

In assessing fund performance, Rating Factors include:

- Absolute returns
- Volatility over the life of the fund
- Risk-adjusted returns (e.g. Sharpe Ratio)
- Performance against peers and relevant benchmark indices
- Maximum loss sustained during any period and number of down months

Performance	
Excellent – Fund has consistently and materially posted positive returns and outperformed benchmarks on an absolute and risk-adjusted basis. Returns have been consistent with low volatility and no material down months	5
Strong – Fund performance has generally been strong and it has outperformed its peer group. Returns reflect a typical mix of up and down months.	4
Good – Fund performance has been average relative to peers. Returns have generally been consistent, but there have been one or more material down months	3
Fair – Fund performance has been mixed or below average among comparable funds. Returns vary significantly and include several down months	2
Marginal – Fund performance has been well below average relative to peers, and may include some significant losses. Returns display a high degree of volatility	1
Weak – Fund performance has been materially weak. Volatility of returns poses a serious concern.	0

Growth & Stability of Capital Base: Risk Weighting 6%

This Rating Driver is intended to capture a wide range of issues relating to the stability of the fund’s capital base. Capital growth or declines are driven by performance and new investor contributions/withdrawals. Since performance is assessed above, the criteria for scoring this Driver are focused on the issues that affect redemption risk. In particular, Analysts are encouraged to consider:

- History of new capital contributions and redemptions, with preference to a long history of steady growth in NAV through a mix of performance and new contributions
- Composition of capital among insiders, institutional investors, funds of funds and high net worth individuals
- Vulnerability to “hot money” from funds of funds and other allocators
- Investor lock-ups, withdrawal frequency, notice periods and gates that mitigate redemption risk

Growth & Stability of Capital Base	
Excellent record of consistent capital growth and stability. NAV has grown steadily over many years due to performance and new contributions. No significant investor concentrations and limited exposure to “hot money” from allocators. Investor composition skewed towards sophisticated institutions, long term strategic investors or insiders. Presence of rolling multi-year lock-ups and	5

gates on redemptions.	
Strong history of capital growth & stability. NAV has grown through performance and capital inflows. Investor diversification is good. Investor lock-ups, penalties and gates substantially mitigate redemptions risk. Withdrawals generally not permitted more frequently than quarterly.	4
Good history of capital growth and stability. Withdrawal terms (generally Quarterly) provide some mitigation against redemption risk. Moderate investor diversification with some vulnerability to allocators or other concentrations (generally <30%).	3
Fair record of capital growth or stability. NAV may have grown, but is considered vulnerable to redemption risk. Significant concentrations from allocators or a few investors (<50%). Withdrawals may be permitted monthly with limited restrictions in the form of lock-ups, notice periods or gates.	2
Marginal record of capital growth and stability. Fund may be particularly vulnerable to redemption risk through generous withdrawal terms and/or a highly concentrated investor base.	1
Weak. One or a few dominant investors (>50% NAV) or very high reliance on allocators. Redemption rights are considered inappropriate relative to portfolio structure and liquidity risk.	0

General Drivers Relating to Manager: Risk Weighting 60%

Assets Under Management: Risk Weighting 7%

This Rating Driver addresses the amount of assets being managed by the fund manager, including but not limited to the individual fund. Size affords various benefits to hedge fund managers, including greater bargaining power with investors and counterparties and a larger stream of management fees that may provide a cushion against declines in incentive fees (which may occur during periods of poor performance or afterward if there is a high water mark clause in their contract).

Assets Under Management	
>= USD3 billion	5
>= USD1 billion	4
>= USD750 million	3
>= USD500 million	2
>= USD100 million	1
< USD100 million	0

Number of Years Experience as an Independent Manager: Risk Weighting 8%

Newer managers are deemed to present a higher risk profile than more seasoned funds, even if they had prior professional experience in trading, portfolio management or academia. Analysts should include only the amount of time that the investment manager has been in business as an independent entity. Start-up business risks are partially mitigated in institutionally sponsored funds (i.e. Man Group, GSAM, DEAM) that offer strong risk management controls and operational support to start-up managers. Such managers, as well as managers spun-off from major Wall St. firms as complete businesses, may be upgraded at the Analyst's discretion.

Number of Years Experience as an Independent Manager	
>= 15 years	5
>= 10 years	4
>= 5 years	3

>= 3 years	2
>= 1 year	1
< 1 year	0

Reputation & Management Depth: Risk Weighting 10%

This Rating Driver is intended to capture many of the more subjective issues inherent in hedge fund analysis. Rating Factors include:

- Background of the principals, with a preference toward those who have a long history and strong professional and academic credentials
- Strength of prior professional experience and the quality of the organizations in which the principals worked
- History of regulatory compliance, investigations, accounting problems, allegations of wrongdoing etcetera
- Strength and history of relationship with Lehman Brothers, with a preference toward managers who have long and favorable histories with multiple Lehman staff across functions.
- Reliance on one or a few key individuals whereby the departure of these individuals could result in material negative impact of the fund's future performance or ability to attract or retain capital

Reputation & Management Depth	
Excellent – Large, well-qualified management group with institutional bench strength; generally recognized as industry leaders. Manager may be registered with several regulatory bodies and has strong compliance culture. Broad organizational contacts at Lehman.	5
Strong – Good management team with extensive and consistently successful track record. Demonstrated ability to retain and attract superior talent. Clear segregation of duties. Clean reputation and well known to Lehman.	4
Good – Management may be concentrated with one or a few principal decision-makers. Principals have good reputations and relevant experience with top tier firms.	3
Fair – Concentrated management team. May have limited independent track record but has modest relevant experience. Heavy reliance on key individuals and external service providers. Shallow relationship with Lehman.	2
Marginal – Principals lack significant management experience and are not well known to Lehman. Organization may be described as “Two guys and a Bloomberg”. Principals may not have bad reputations per se, but lack compelling credentials.	1
Weak – Poor track record, reputation or history of questionable dealings. Previously subject to regulatory fines, censure, criminal prosecution or significant civil claims.	0

Quality of Risk Management Framework: Risk Weighting 10%

Assessing the manager's risk management framework is an important part of the due diligence process with hedge funds. Rating Factors include:

- Sophistication of risk management infrastructure relative to complexity of trading instruments and strategies deployed.
- Existence of independent risk oversight and internal audit functions.
- Use of reputable third-party administrators
- Reputation and stability of external auditors

- Framework for evaluating trader profitability and allocating capital against positions
- Use of stress testing and scenario analysis
- Reasonability of assumptions about correlations between asset classes and/or strategies
- Use of third-party valuation agents

Quality of Risk Management Framework	
Excellent – Independent and strong risk oversight function. Multiple layers of monitoring, risk limits and stop loss triggers. Integrated VaR and stress testing platform supported by robust analytics and conservative assumptions. Disciplined capital budgeting process. Daily, comprehensive P&L verification.	5
Strong – Sound overall risk framework supported by good, but perhaps not industry-leading, portfolio analytics and reporting tools. Clear procedures for addressing risk guideline breaches. Third party valuation.	4
Good – Direct risk oversight by sr. portfolio manager(s). Little discretion in overriding risk limits. Limited trading authorization and segregated trade reconciliation and price verification functions. Portfolio marked externally at least monthly	3
Fair – No formal risk limits or guidelines but acceptable monitoring and control procedures. Infrequent calibration of risk models.	2
Marginal – Weak investment discipline. Limited constraints on position sizes.	1
Weak – Ad hoc risk management and inadequate controls. Opaque risk appetite. Significant portfolio segments may not reflect market based pricing.	0

Record During Various Market Conditions and Disruptions: Risk Weighting 12%

This Rating Driver favors funds that have weathered one or more market disruptions successfully. Managers that have performed well in all kinds of market conditions (e.g. steep yield curve, flat yield curve, bull and bear equity markets, recessions and economic expansions, tight and loose credit markets etcetera) and/or survived major market disruptions (e.g. LTCM crisis, Russia/Argentina default, 1994 rate increases etcetera) are deemed to pose less risk than managers who are new or who experience problems.

Record During Various Market Conditions and Disruptions	
Excellent – Manager has performed well in several difficult markets for particular asset class and has a proven track record of thriving during major market disruptions	5
Strong – Manager has performed well during various market conditions	4
Good – Manager has always performed well, but has not been seriously tested by a major market disruption or full economic cycle	3
Fair – Manager has limited experienced in varying market conditions or experienced some trouble during previous events	2
Marginal – Manager is almost completely untested or had significant trouble during one or more previous market disruptions	1
Weak – Manager had a major problem during a previous market event	0

Operational Infrastructure & Support: Risk Weighting 8%

In assessing this Rating Driver, the Rating Factors to consider include:

- Overall quality and integrity of the manager’s back office, including margin management function
- Strength and experience of its operations professionals

- Lehman’s own experience, positive or negative, in dealing with various middle or back-office functions. For example, have we had repeated problems with documentation, confirmations, trade reconciliation, margin calls, settlements etcetera?

Operational Support & Infrastructure	
Excellent – Operational infrastructure and capabilities of personnel are well suited to the complexity of portfolios and volume of trade activity. Good controls and highly scalable processes/systems. Execution of trade confirms and satisfaction of margin calls is timely. Disputes are generally resolved in client’s favor. Business is conducted out of multiple locations with remote backup systems. Well documented business continuity/contingency plans.	5
Strong – Internal capabilities have some excess capacity relative to current investment activity but not necessarily best of class and could benefit from increased automation and refinement of internal controls. Responsive in reconciliations of positions and valuation errors.	4
Good – Operations are well matched to current needs but significant increase in AUM or diversification in strategies may require meaningful investment. Adequate segregation of functions and reasonable controls. Certain operational functions may be outsourced to reputable 3rd party providers.	3
Fair – Some co-mingling of functions but under close supervision by senior management. Operational resources are just adequate given trading volumes, number of counterparties or complexity of investment strategies. Heavily reliant on outsourcing of back-office functions.	2
Marginal – Higher than average risk of loss due to fraud or administrative errors. Controls not adequately documented. Susceptible to disruption in business activities due to equipment failure or loss of access to primary business site.	1
Weak – no clear segregation of duties; manually intensive operations or inadequate staffing levels and training. Frequent and erroneous margin disputes, above average settlements fails or substantial backlog of unexecuted trade confirmations.	0

Transparency: Risk Weighting 5%

In assessing this Rating Driver, Rating Factors include:

- Extensiveness of disclosure and quality and depth of risk information provided
- Responsiveness of management to questions and Credit due diligence efforts
- Consistency of responsiveness during market disruptions or significant events specific to the manager
- Parity of disclosure among counterparties, creditors and shareholders
- Willingness of manager to discuss poor performance or other negative events

Transparency	
Excellent – Managers who maintain a “see anything we want” policy, proactively provide broad disclosure and are consistently responsive. Promptly provide performance attribution, risk exposures against explicit tolerance limits or internal guidelines, portfolio concentrations and risk sensitivities, leverage, VaR, stress test results, liquidity analysis, access to investor newsletters and are forthcoming about material changes to their organization or investor base.	5
Strong – Managers who are open and responsive to our due diligence requests, but maintain certain limitation on what they’ll provide or discuss	4
Good – Managers who provide moderate levels of disclosure and are generally	3

open to discussing issues that concern us	
Fair – Managers who maintain material restrictions on information we care about; manager may be cooperate but reserved	2
Marginal – Managers who limit disclosure to only monthly performance and fund NAVs, are chronically late reporting or are difficult or non-responsive to our due diligence efforts	1
Weak – No meaningful disclosure provided. Access to management is limited.	0

Internal Facility Rating

Introduction

While frequent reports abound of hedge funds ceasing operations, predominantly due to lack of market opportunities or failure of their performance models, specific instances of actual default events are rarely documented publicly. Anecdotally, most credit events take the form of technical breaches versus failure to pay which are usually resolved through private negotiations between the contracting parties and may not lead to an event of default. Additionally, the adjudication of creditors' claims through formal bankruptcy proceedings, while increasing, is still a minor phenomenon in this sector and primarily related to instances where there are allegations of fraud. Most terminating funds liquidate their portfolios and satisfy their liabilities in an orderly fashion, never having obligations accelerated by creditors nor activating cross-acceleration triggers. The primary cost to the managers of these pooled investment vehicles is mainly reputational, leading to restricted future access to investor capital or credit.

Due to the paucity of verified defaults, associated empirical data on losses is virtually non-existent in academic or industry research. Generalized estimates of recovery rates are, therefore, anecdotal at best, speculative at worst. Recovery rates may vary due to several factors including strategy classification and degree of leverage employed, the structural liquidity, market price stability and operational complexity of the underlying portfolio overlaid by varying requirements for notice and grace periods under various forms of netting and close-out agreements, as well as the legal domiciles governing those agreements. Indeed, by the very nature of their trading strategies hedge fund default events are likely to coincide with unpredictable and extreme market movements and diminished asset values and recovery prospects. Further, fraudulent activity is, by design, difficult to detect and associated losses are impossible to predict. Therefore CRM believes that the impact of individual drivers is impossible to isolate and evaluate, and hence ex ante CRM do not believe Analysts can effectively discriminate between Counterparties.

CRM's proxy for the average recovery rate for hedge fund related payment events are drawn from our direct experience in this sector. While the sample is small and actual loss experience may vary widely from firm to firm, CRM believes that it is a reasonable basis for adopting a pooled recovery rate assumption of 10% for the industry. This level appears relatively conservative given our actual experience.

Appendix 5 – Sovereigns

Definition

The Sovereign Scoring Model is a framework for providing an internal country ratings methodology, which provides an insight into the likelihood of a systemic crises occurring within the political and economic environment of a sovereign’s jurisdiction and thus can be used as a proxy for assessing a government’s ability and willingness to service debt in a timely manner and to weather political and financial shocks.

Introduction

The scoring model is constructed using 43 macroeconomic, financial, political, social and security variables (indicators) tracked by the Sovereign team across 173 countries and which form the basis for assessing 10 ratings drivers.

The first five drivers – Growth, Savings and Inflation, External Sector, Debt Dynamics, Government & Monetary Sectors, and Financial Sector – are intended to establish the analyst’s view of the relative macroeconomic strength and debt repayment capacity of the sovereign, independently of political considerations. After completing that analysis of objective macroeconomic conditions in a country, the analyst reviews the sovereign’s political, social and social structure. The next five drivers – Political Stability, Regulatory Environment, Corruption, Social Development, and Security Environment – provide a comprehensive assessment of how economic activity and revenue generation is supported institutionally, with appropriate political, social and legal safeguards.

To facilitate the ratings process, and to enhance its consistency and transparency, the Sovereign risk team group, score and weight the underlying indicators to result in a score between 0 – 5 (including decimal places) for each rating driver. This score is used to map to a definition for each rating driver, and unlike other scorecards the Sovereign team also use each drivers’ granular score as the input score used for the rating driver in the overall ICR assessment.

Refined Scale	Definition
4.5 - 5.0	Excellent
3.5 - 4.4	Strong
2.5 - 3.4	Moderate
1.5 - 2.4	Weak
0.5 - 1.4	Unsatisfactory
0.0 - 0.4	Poor

The process of aggregating the underlying indicators, and the weight assigned to each rating driver, has been determined based on the expert judgment by the Sovereign Team.

ICR Rating Driver	Risk Weighting	Risk Weighting
Economy	45%	
Growth, Inflation and Savings		10%
External Sector		9%
Debt Dynamics		10%
Government & Monetary Sectors		8%
Financial Sector		8%
Politics	55%	
Political Stability		14%

Regulatory Environment		8%
Corruption		8%
Social Development		8%
Security Environment		17%
Total	100%	100%

Conversion Table

Rating Driver Based ICR	Rating Drivers' Weighted Score	
	>	<=
iAAA	90	100
iAA	80	90
iA+	76	80
iA	71	76
iA-	66	71
iBBB+	61	66
iBBB	56	61
iBBB-	51	56
iBB+	46	51
iBB	41	46
iBB-	36	41
iB+	30	36
iB	25	30
iB-	20	25
iCCC	0	20

Economy: Risk Weighting 45%

Each rating analysis begins with an assessment of a country's economic environment. To determine the degree of risk facing a sovereign, it is critical to determine the context of the country's macroeconomic and financial fundamentals. The analyst needs to identify the major aspects of economic performance that determine not only the financial profile of the government, but shapes the operating environment for businesses domiciled in that country. The analyst must pay special attention to movements in the economic cycle, and the potential impact of domestic and external factors on macroeconomic stability and volatility, which may imply a greater risk from a credit perspective. In addition, a sovereign's current debt burden can determine not only its ability to perform on its obligations in the future, but also to withstand pressures associated with unexpected external shocks to the economy or fiscal distress at home. Finally, the assessment of the strength of the financial sector and select structural factors focuses on the ability of the economic system to support growth through effective allocation of capital and to utilize market resources efficiently (as measured by population, purchasing power and employment).

Growth, Inflation, and Savings: Risk Weighting 10%

The first risk variable in the analysis involves identifying and assessing the domestic economic environment. The Rating Factors below help determine the score for this Driver:

- Prospects for economic growth, stability or decline
- Size of the economy (GDP) and the population

- Ability to finance economic activity (national savings)
- Unemployment

Domestic Economy	
Excellent – Well diversified economy, characterized by big size, strong growth, convertible currency, and high level of national savings. External shocks and cyclical events have a limited effect; economic development is steady and consistent with historical trends.	4.5 – 5.0
Strong – A relatively large economy, characterized by positive growth, stable currency, and relatively high level of national savings. External shocks and cyclical events have a more pronounced effect but economic development is consistent with historical trends.	3.5 – 4.4
Moderate – An average size economy with positive growth, relatively stable currency, and somewhat lower level of national savings. External shocks and cyclical events may have a significant effect on economic development.	2.5 – 3.4
Weak – A below average-sized economy prone to frequent reversal is growth, relatively unstable currency, and relatively low level of national savings. External shocks and cyclical events have a serious impact; economic development is not steady and generally consistent with historical trends.	1.5 – 2.4
Unsatisfactory – A small-sized economy, characterized by negative growth, unstable currency and low levels of national savings. External shocks and cyclical events have a profound effect; economic development is not steady and inconsistent with historical trends.	0.5 – 1.4
Poor – A small-sized, not diversified economy, characterized by frequent contractions in output, extremely volatile currency and negligible levels of national savings. External shocks and cyclical events dominate economic development, which is erratic.	0.0 – 0.4

External Sector: Risk Weighting 9%

For the External Sector variable, the analyst’s task is to assess the country’s integration into the global system of trade and finance, and its ability to withstand exogenous shocks. Several factors determine an economy’s ability to profit from globalization and withstand external pressure, including the growth of its exports vs. imports, the current account balance in the balance of payments, and the country’s general terms of trade. Analyzing foreign trade patterns is important since they are connected not only with future financial needs (under an assumption of growing imports), but also with future liquidity, especially for export-oriented economies. In addition, trade flows are oftentimes closely associated with capital flows. Any other idiosyncratic features of the current account should be assessed. To summarize, the factors to determine scoring are:

- Competitiveness (real effective exchange rate)
- Ability to generate external earnings (growth of exports).
- Additional financial needs (growth of imports)
- FDI inflows
- Current account sustainability
- External competitiveness (terms of trade)
- Ability to attract foreign investment (FDI in relation to the current account balance)

External Sector	
Excellent – A robust external sector, characterized by strong growth in export revenues, moderate imports, a current account surplus and positive terms of trade. The sector is well diversified, resistant to external shocks and contributes	4.5 – 5.0

to economic growth.	
Strong – A strong external sector, characterized by exports growing faster than imports, a current account surplus or equilibrium and good terms of trade. The sector is relatively well diversified, mitigating external shocks.	3.5 – 4.4
Moderate – A good external sector, characterized by exports at the same rate as imports, a current account in equilibrium and generally good terms of trade. The sector is relatively not very well diversified making the economy vulnerable to external shocks.	2.5 – 3.4
Weak – A small external sector, dominated by imports, and characterized by a current account deficit and negative term of trade. The sector is relatively not very well diversified making the economy vulnerable to external shocks.	1.5 – 2.4
Unsatisfactory – A relatively closed economy dependent on imports with a large current account deficit and negative term of trade. The sector is dependent on several commodities making the economy very vulnerable to external shocks.	0.5 – 1.4
Poor – A closed economy focused with very low trade levels or focused on exporting a single commodity. The economy is vulnerable to external shocks and prone to underdevelopment.	0.0 – 0.4

Debt Dynamics: Risk Weighting 10%

Assessment of debt dynamics focuses on analyzing the country's debt burden relative to its economic endowment and its ability to service these obligations. Consideration is given to delivering on past obligations as well as the government's debt management strategies and policies. The short-term debt factor is important due to its impact on short-term liquidity management. Particular importance should be placed on the country's reserve coverage as additional financial needs or repayment obligation, if lacking adequate coverage, could result in an event of default. The list of debt indicators includes:

- External debt obligations relative to the economic endowment
- External borrowing
- Debt Service dynamics
- Reserves and reserve coverage

Debt Dynamics	
Excellent – An economy characterized by low levels of debt. External debt is low as a share of GDP, and there is little or now short-term debt. The country's debt service ratio is low and it has high reserve coverage.	4.5 – 5.0
Strong – An economy characterized by relatively low levels of debt. External debt is relatively low as a share of GDP, and only a small fraction is short-term debt. The country's debt service ratio is relatively low and it has relatively high reserve coverage.	3.5 – 4.4
Moderate – An economy characterized by average debt levels. External debt is at average levels, and a small share is in short-term debt. The country's debt service ratio is average and it has an average reserve coverage.	2.5 – 3.4
Weak – An economy characterized by above average debt levels. External debt is above average, and the share of short-term debt is higher. The country's debt service ratio above average and it has above average reserve coverage.	1.5 – 2.4
Unsatisfactory – An economy characterized by high debt levels. External debt is high, and short-term debt represents a significant share. The country's debt service ratio is high and it has low reserve coverage.	0.5 – 1.4

Poor – A highly indebted economy. External debt is extremely high and a significant part is in short-term debt. The country's debt service ratio is extremely high and it has very low or no reserve coverage.	0.0 – 0.4
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Government & Monetary Sectors: Risk Weighting 8%

This risk variable involves identifying and assessing two of the most important determinants of national economic performance – fiscal and monetary policy. These policies are essential in the analysis of many macroeconomic aggregates, including growth, inflation, currency stability, and unemployment. The factors below should be assessed to determine the score for this variable:

- Fiscal Balance (including general and primary)
- Domestic credit to the economy
- Currency regime
- Sovereign default

Government & Monetary Sectors	
Excellent – The government conducts prudent fiscal policy, characterized by strong primary and overall surpluses, domestic credit growth is sustainable, monetary policy is effective resulting in a benign inflationary environment and there is a free floating currency regime.	4.5 – 5.0
Strong – The government conducts generally good fiscal policy, characterized by primary surpluses and a generally balanced overall budget. Domestic credit growth is generally sustainable, monetary policy is mostly effective resulting in low inflation and there is a managed free floating currency (through sterilized intervention only).	3.5 – 4.4
Moderate – The government's fiscal policy is characterized by a primary surplus and an overall deficit is low. Domestic credit growth is moderate, monetary policy is often effective resulting in low inflation (or mild deflation) and there is a heavily managed floating currency (through sterilized or non-sterilized interventions).	2.5 – 3.4
Weak – The government's fiscal policy is characterized by a small primary surplus and an overall deficit is relatively low. Domestic credit growth is high, monetary policy is sometimes effective resulting in somewhat higher inflation (or strong deflation) and there is a managed peg (or currency board).	1.5 – 2.4
Unsatisfactory – The government's fiscal policy is characterized by a small primary deficit and a high overall deficit. Domestic credit growth is extreme (very high or negative), monetary policy is often effective resulting in high inflation and there is a fixed exchange rate.	0.5 – 1.4
Poor – The government's fiscal policy is irresponsible with a high primary deficit and an overall deficit above 4% of GDP. Domestic credit growth is unsustainable, monetary policy is mostly effective in a hyperinflationary environment and a fixed exchange rate.	0.0 – 0.4

Financial Sector: Risk Weighting 8%

Within the Financial Sector variable, the analyst is trying to assess the financial strength of the banking sector, the effectiveness and extent of financial intermediation in the economy, and the efficiency of capital allocation. An estimation of the level of impaired assets in the economy, with special attention paid to the accounting standards and disclosure for both financial and non-financial entities in that jurisdiction, is key to the assessment of the strength of the financial sector. The specific factors taken into account for this variable are:

- Financial strength of banks and the banking system
- Level of impaired assets economy-wide
- Transparency and disclosure standards for financial information
- Depth of capital markets and liquidity

Financial Sector	
Excellent – The banking system is broad and well-capitalized. Supervision and regulatory oversight are independent and professional, the level of impaired assets is very small and the country adheres to international disclosure and accounting standards.	4.5 – 5.0
Strong – The banking system is well-capitalized, supervision and regulatory oversight are relatively independent and professional, the level of impaired assets is small and the country has adopted international disclosure and accounting standards.	3.5 – 4.4
Moderate – The banking system is not very broad and well capitalized; supervision and regulatory oversight are not politically independent but professional, the level of impaired assets is average and the country adheres to some international disclosure and accounting standards.	2.5 – 3.4
Weak – The banking system is relatively large but there are some concerns about deteriorating asset quality. Supervision and regulatory oversight are not politically dependent, the level of impaired assets is high and the country does not recognize international disclosure and accounting standards.	1.5 – 2.4
Unsatisfactory – The banking system is small with serious concerns about deteriorating asset quality. Supervision and regulatory oversight serve no meaningful function, and the country does not recognize international disclosure and accounting standards.	0.5 – 1.4
Poor – The banking system is technically insolvent. Supervision and regulatory oversight serve no meaningful function, and local disclosure and accounting standards are completely incompatible with international standards.	0.0 – 0.4

Politics: Risk Weighting 55%

The political section of the scoring methodology assesses the country's policy capacity, its ability to effectively manage its economic resources, provide an adequate operating environment for doing business, and withstand security challenges that could destroy productive assets in the economy. Paramount to the analysis is the country's ability to organize and maintain a transparent and effective democratic political process. A stronger system would tend to be characterized by prudent rule making and regulation, and adequate responses to the changing social, political and economic environment at home and abroad. Political analyses also provide insight into the country's social structures and norms, which may include practices (corruption) that destroy economic value. While many of the underlying political indicators are determined on the basis of quantitative inputs from cross-national surveys and databases, it is equally important to focus on trends that can be observed from the continuous monitoring of current events in each particular country and in every geographic region. Oftentimes, political and electoral cycles might move together in several different countries, generating regional dynamics that can be useful for the individual analysis. The review of political factors should proceed from historical developments to projected policy performance/output for any political category that is deemed to have an impact on economic performance, debt repayment or business/consumer sentiment. The assessment of the political creditworthiness of a sovereign should be carried out in the context of, and relative to, the analysis of economic fundamentals since sovereign analysis is based on both the ability and willingness to pay.

Political Stability: Risk Weighting 14%

A country's political stability is key to expectations of future economic performance. A democratic political system, with adequate protection of individual civil and political rights is, on balance, more likely to support competitive market institutions and favorable domestic business environment. At the same time, certain non-democratic countries can exhibit political stability, at least in the short term, in which case the analyst should consider overriding this score. A fractionalized political establishment may render the policy making process ineffective and generate uncertainty in the marketplace. The analyst should focus on the existing system for the transfer of power and further analyze the possible impact of the electoral/political cycle on key economic variables. The following factors should be guidelines for the political stability scoring:

- Competitiveness of the political establishment (Freedom House rankings)
- Political Fractionalization
- Policy Uncertainty
- Political Cycles and Transfer of Power System

Political Stability	
Excellent – The political process in the country is competitive and democratic, political fractionalization does not impede with the need to conduct important policies and reforms, the government is well organized and effective and there is an established and smooth system of transition of political power.	4.5 – 5.0
Strong – The political process in the country is democratic, political fractionalization often does not impede with the need to conduct important policies and reforms, the government generally effective and there is an established system of transition of political power.	3.5 – 4.4
Moderate – The political process in the country is generally democratic but not very competitive, political fractionalization sometimes impedes with the need to conduct important policies and reforms, and the government is somewhat effective. There is an established system of transition of political power but it is not always in use.	2.5 – 3.4
Weak – The political process in the country is rarely democratic, political fractionalization often impedes with the need to conduct important policies and reforms, and the government is rarely effective. There is an established system of transition of political power but it is only sometimes in use.	1.5 – 2.4
Unsatisfactory – The political process in the country is predominantly undemocratic, political fractionalization always impedes with the need to conduct important policies and reforms, and the government is never effective. There is an established system of transition of political power but it is never in use.	0.5 – 1.4
Poor – There is no political process and no competition for public office, political fractionalization does not matter since there are no free political parties, and the government serves private agendas. There is no established system of transition of political power.	0.0 – 0.4

Regulatory Environment: Risk Weighting 8%

A country's regulatory environment is a key determinant of the transaction costs associated with doing business in the jurisdiction. The most important aspects of any country's regulatory infrastructure are the supervision and oversight of the banking system, general regulatory risk (legal, tax) and the availability and adequacy of legal recourse in the case of default/bankruptcy. Rapid and unexpected

changes in regulations can have an adverse impact on business and may even contribute to the occurrence of economic and political crises. The factors that should be most closely watched include:

- Central bank independence and quality of bank supervision.
- Legal and regulatory risks
- Tax risks
- Default/Bankruptcy regulations

Regulatory Environment	
Excellent – There is very little legal or tax risk, the law treats residents and non-residents with the same impartiality. There are clear and consistent bankruptcy regulations and legal recourse is available in the case of default.	4.5 – 5.0
Strong – There is little legal or tax risk, the law treats residents and non-residents with the same impartiality. Bankruptcy regulations are clear and generally consistent and legal recourse is generally available in the case of default.	3.5 – 4.4
Moderate – There is some legal or tax risk, the law treats residents and non-residents with the same impartiality. Bankruptcy regulations are not very clear and consistent and legal recourse is generally available in the case of default but the judicial process is very slow.	2.5 – 3.4
Weak – There are legal and tax risk, the law treats residents and non-residents with impartiality. Bankruptcy regulations are unclear and inconsistent and legal recourse is often not available to non-residents.	1.5 – 2.4
Unsatisfactory – There are significant legal and tax risk, the law does not treat residents and non-residents with impartiality. Bankruptcy regulations are unclear and inconsistent and legal recourse is not available to non-residents.	0.5 – 1.4
Poor – The legal and tax structure is not permanent but changes constantly. The judiciary is biased and always discriminates against non-residents. There are no bankruptcy regulations and no recovery should be expected for assets in default.	0.0 – 0.4

Corruption: Risk Weighting 8%

Corruption entails a wide range of activities from improper political conduct and lack of a well functioning judicial system to denied access to public information. This phenomenon generally undermines business efficiency, reduces investor confidence, raises concerns about the de facto sanctity of private property, and limits the popularity of and support for the government. The main source for this ranking is Transparency International’s annual Corruption Perception Index and associated reports

Corruption	
Excellent – The country is highly clean as characterized by a very high TI score and ranking.	4.5 – 5.0
Strong – The country is clean as characterized by a high TI score and ranking.	3.5 – 4.4
Moderate – The country is somewhat clean as characterized by an average TI score and ranking.	2.5 – 3.4
Weak – The country is not clean as characterized by a below average TI score and ranking.	1.5 – 2.4
Unsatisfactory – The country is corrupt as characterized by a low TI score and ranking.	0.5 – 1.4
Poor – Corruption is endemic in the country, a very low TI score and ranking.	0.0 – 0.4

Social Development: Risk Weighting 8%

The quality of the social environment in a country is key to the normal functioning of political institutions and markets. It is generally determined by the level of human development, which is captured in the Human Development Index (HDI). HDI is a composite index produced annually by the United Nations, measuring the average achievement in a country in three basic dimensions of human development: a long and healthy life, measured by life expectancy at birth; knowledge measured by the adult literacy rate and the combined gross enrolment ration in primary, secondary and tertiary schools, and a decent standard of living, measured in purchasing power parity terms. In addition, a country that has population, with high purchasing power and lower income inequality generally provides market conditions that are supportive of steady growth, high debt repayment capacity and low likelihood of frequent systemic crises. The following indicators are taken into consideration for the structural score:

- Human development level
- Purchasing power (GDP per capita, income levels)
- Income distribution and equality

Social Development	
Excellent – The country has high human development, with high purchasing power and low inequality, which consistently provides social conditions supportive of steady growth, high debt repayment capacity and low likelihood of frequent systemic crises.	4.5 – 5.0
Strong – The country has high human development, with high purchasing power but somewhat high inequality rates, which provides social conditions generally supportive of growth, debt repayment capacity and low likelihood of frequent systemic crises.	3.5 – 4.4
Moderate – The country has medium human development, with high purchasing power and moderate inequality, which provides social conditions generally supportive of debt repayment capacity, although often constraining in terms of growth. There is a small likelihood of systemic crises and social disturbances.	2.5 – 3.4
Weak – The country has medium human development, with medium purchasing power and high inequality, which provides social conditions generally supportive of growth, although often constraining in terms of debt repayment capacity. There is a strong likelihood of systemic crises and social disturbances.	1.5 – 2.4
Unsatisfactory – The country has a low human, with medium purchasing power and moderate inequality, which provide social conditions oftentimes not supportive of growth and good debt repayment capacity. Systemic crises and social unrest have occurred frequently in the past.	0.5 – 1.4
Poor – The country has low human development, with low purchasing power and high inequality, which severely constrain growth and debt repayment capacity. There is a high likelihood of systemic crises and social unrest occurring in the short term	0.0 – 0.4

Security Environment: Risk Weighting 17%

Security concerns can effectively constrain economic activity within a certain territory, adversely impact the course of political development, and in the cases of open conflict and war directly destroy economic value. In assessing the security environment, the analyst should pay attention to both internal and external sources of instability. Domestically, the security situation may be influenced by secessionist and/or militant ethnic/religious minorities who could establish effective control over parts of the country. Externally, political and economic development could be disturbed by hostile neighbors or border disputes that could lead to war. The following indicators are taken into consideration for the structural score

- Ethnic & Religious Strife
- Social, Political & Labor Unrest
- Role of the Military
- Border Dispute
- Food & Energy Shortage
- Natural Hazards

Security Environment	
Excellent – The country has no internal or external conflicts, security services do not influence the political establishment, there are no food and energy shortage and the territory and population is not exposed to natural hazards.	4.5 – 5.0
Strong – The country has no major internal or external conflicts, security services do not influence the political establishment, there are food and energy shortage and the territory and population is not significantly exposed to natural hazards.	3.5 – 4.4
Moderate – The country may have a current internal and past external conflict, security services currently not influence the political establishment, there are only occasional food and energy shortage and the territory and population is not significantly exposed to natural hazards.	2.5 – 3.4
Weak – The country is in an internal or external conflict, security services influence the political establishment, food and energy shortage are a recurring issue and the territory and population may be significantly exposed to natural hazards.	1.5 – 2.4
Unsatisfactory – The country has experienced a protracted internal or external conflict, security services dominate the political establishment, there are persistent food and energy shortages and the territory and population may be exposed to natural hazards.	0.5 – 1.4
Poor – The country is in a state of internal/external war, ruled by the military; there is a rationing system and the physical environment is unfriendly.	0.0 – 0.4

Internal Facility Rating

Due to the infrequent nature of sovereign default, there is generally insufficient empirical data, especially when compared to corporate defaults, to quantify measures of recovery rates. As a consequence, the CRM proxy for the recovery rates for sovereign counterparties is based on the 25%-30% range typical pricing of defaulted debt in secondary markets observed in the past.

One of the main reasons for the sovereign default conundrum is the fact that in order to resolve debt crises in the absence of an international bankruptcy law, the defaulting countries and lenders typically renegotiate over the reduction of defaulted debt. In the absence of a legal sanction, the primary cost a defaulting government faces is reputational. Sovereign default may result in the loss of future access to capital markets, or lead to direct sanctions imposed by the lenders or multilateral institutions. Similarly, the decision to default is purely political and there is significant evidence in the academic literature that suggests that there is often considerable variation in the recovery for different investors within the same exchange or restructuring. CRM also believe that future recovery/restructuring decisions for not-yet-defaulted Sovereigns are made in the context of international historical experience and behavior with respect to prior defaults and recoveries, rather than relying purely on case-by-case and other contextual inputs. A further complication is the fact that there is more than one type of asset that the sovereign may default on (typically bonds but also loans and other forms of

official financing) but at the same time when the sovereign defaults on one type of asset, there is usually a sharp correction in the market valuation of the sovereign's other assets.

There are two empirical studies of sovereign bond defaults and recoveries done by Moody's Investor Service and Fitch Ratings. Moody's 2003 study "Sovereign Bond Default, Rating Transitions, and Recoveries (1985-2002)" found that annual default rates for speculative grade sovereigns are similar to those of corporate issuers but differed significantly for investment grade issuers as no investment grade sovereign since 1985 had defaulted. Recovery rates on defaulted sovereign bonds, as measured by the first available bid price 30 days after the default were found to average 34% from seven cases of default.

Fitch's 2005 methodological note on recovery analysis and sovereign ratings found that recovery rates of defaulted sovereign obligations were in the range of 30% to 50% and suggested a recovery scale based upon the expected relative recovery characteristics of issuers and issues.

Among the academic research on this topic, Federico Sturzenegger and Jeronim Ostry ("Haircuts: Estimating Investor Losses in Sovereign Debt Restructurings 1998-2000") studied recent realized investor losses and determined that average recoveries ranged from 13% to 73% with most cases clustered in the 25%-35% range.

Given the Analyst's limited ability to systematically discriminate and quantify, ex ante, the drivers behind the sovereign's recovery/restructuring decision, CRM considers a pooled expected recovery rate of 30% as most appropriate.

Appendix 6 – Investment Advisors

Definition

The term Investment Advisor (IA) is used within CRM to refer to legal entities which are authorized to act as Agents on behalf of Principals. Principals are often referred to as sub-accounts and are usually either (i) collective investment schemes, (ii) pension funds, (iii) foundations/ endowments or (iv) other types of principals. Investment Advisors trading with Lehman are usually either:

- Fund managers that have been given authority to invest/allocate principals' monies in financial assets and/or engage in investment and funding strategies. Fund managers will typically negotiate an Investment Management Agreement with its principals to establish capacity, mandate scope, investment guidelines, performance benchmarks and benchmark indices, fee structures and reporting requirements. Some Fund Managers act on behalf of a range of different third party clients for only a portion of the sub-account's total assets (e.g. IAs that win pension fund mandates) whereas others may be acting on behalf of their own label funds in an exclusive capacity, for which they or a sister company may have also acted to raise the invested capital in the first instance (e.g. Mutual Fund Managers, Hedge Fund Managers).
- Custodians whose primary responsibility is to safe-keep the assets of the principals and who lend those assets to third parties for the purpose of generating additional fee income. Custodians enter into custody and other agreements with principals which include details regarding which assets can be lent, under what conditions and to which counterparties. Fund Managers may also perform this service, most usually for retail funds marketed under their own in-house brands.

Other entities, usually from within the financial services industry, may also act as Agents from time to time.

Introduction

Lehman Brothers does not take direct credit exposure to an Investment Advisor when the IA is acting in an Agency capacity. In any particular Agent-Principal relationship and trading situation, the bankruptcy or financial distress of the underlying Principal may or may not impact Lehman Brothers directly depending on whether Lehman is directly trading with the sub-account or with a pool of net assets allocated to the Agent by the Principal.

However, Lehman does face indirect risk arising from its dependence on the IA to effectively carry out its Fiduciary Capabilities. In forming a view over the probability of default of each underlying principal or pool of assets represented to Lehman by an individual agent, CRM relies heavily on the expectation that the IA will act prudently and properly in managing the respective sub-accounts. IAs are expected to abide by their fiduciary duties to act for the benefit of their sub-accounts and in accordance with their mandates. Fiduciary duties are generally understood to include the Agent complying with any legal and professional requirements pertaining to the agent's role including any moral strictures, ensuring it has the necessary knowledge to perform in accordance with its capacity, disclosing any limitations, conflicts of interest, or barriers to performing its duties, and not taking advantage of the principal relationship (e.g. misusing information) in a way that could harm those who place confidence in them. We believe that an IA which performs its fiduciary duties properly would not enter into a transaction with Lehman on behalf of a particular sub-account if the IA is aware that the proposed transaction is inappropriate for that sub-account.

The IA Scorecard Framework therefore seeks to answer two main questions:

- Does the IA evidence a satisfactory track record of meeting its fiduciary duties?
- Is it reasonable to expect the IA to continue to act in this manner?

The IA Scorecard Framework utilizes both endogenous and exogenous factors to address these questions. The Framework is split into three Organizational Drivers (Ownership, Years in Business and Corporate Governance) and three Market Drivers pertaining to the environment in which the IA operates and its positioning within that environment (Regulatory Environment, Client Base and Franchise).

The IA Scorecard Framework is therefore used to form a view over an individual IA's fiduciary capabilities and to assign an IA Rating. **The IA Rating is recorded and reported using the Internal Credit Rating (ICR) scale. However, this ICR is not a reflection of the Probability of Default of the IA.** The IA Rating is used as an input to establish ratings for Principals represented by that IA under the **Collective Investment Schemes Scorecard** and the **Agent Principal Policy**.

Individual IA legal entities are sometimes members of larger groups, whether investment management groups or wider Financial Services companies, and such Groups often have subsidiaries in more than one jurisdiction. Many of the Ratings Factors considered in the IA Scorecard are indivisible across individual legal entities e.g. Ownership applies equally to all entities, Corporate Governance structures are usually standardized etcetera. For other Drivers such as Years in Business and Franchise, there are solid arguments that a newly established subsidiary of a major IA should not be penalized because it can often quickly leverage expertise, processes, goodwill and other resources generated by the other group entities. As a result, the Analyst is entitled, though not required, to rate an IA Legal Family Group and then apply that rating to entities within that Family where they enjoy common branding and are majority held and controlled by the Group (i.e. employ "Apply CCP")

ICR Rating Driver	Risk Weighting	Risk Weighting
Organizational Drivers	35%	
Ownership		10%
Number of Years in Existence		10%
Corporate Governance		15%
Market Drivers	65%	
Regulatory Environment		25%
Client Base		15%
Franchise		25%
Total	100%	100%

ICR Conversion Table

Rating Driver Based ICR	Rating Drivers' Weighted Score	
	>	<=
iAAA	90	100
iAA	80	90
iA+	75	80
iA	70	75
iA-	65	70
iBBB+	60	65
iBBB	55	60
iBBB-	50	55
iBB+	45	50
iBB	40	45
iBB-	35	40
iB+	30	35

iB	25	30
iB-	20	25
iCCC	0	20

Organizational Drivers: Risk Weighting 35%

Ownership: Risk Weighting 10%

The ownership Driver captures the expertise and level of other resources available to an IA in conducting its client business. The more resources – financial, operational and technical – available to the IA, the more likely it is to continue to operate within the strictures of its compliance and risk management framework. Therefore, the higher the quality and magnitude of resources and the ongoing commitment of those resources, the more comfortable the Analyst can be with the IA and their activities. The ownership driver also recognizes that the owner has a lot at stake from failure of the IA to perform its fiduciary duties properly i.e. reputation risk. For example, ownership by a major financial institution is considered a major strength for all these reasons. The actual type of ownership places a slightly different spin on the analysis, but common themes apply

- Independent IA – factors to consider include:
 - Is the owner(s) committed to the business: is the owner a hands-off financial investor with a short term profit motive or the original founder with a long term commitment to the business?
 - Is there likely to be ownership stability; is there an identified succession line if the current owner is likely to step down?
 - Do we expect the Group to have access to additional funding if needed; has the owner demonstrated ongoing investment?
- Member of wider group – factors to consider include:
 - How extensively do group members share resources?
 - Is the IA division a core unit with common branding or an independent, peripheral unit ?

Ownership	
Excellent – Top tier independently owned money manager and/or wholly owned subsidiary of well rated parent. Significant resources available and committed to meet the firm’s current and development needs. If independent, the owner shows strong commitment to the continued success of the firm. If part of a wider group, there is a reputable parent in a strong regulatory environment with full resource availability; the unit has common branding and is viewed as core to the Group’s product offering.	5
Strong – Large independently owned money manager and/or wholly owned subsidiary of reputable parent. Sizable resources accessible and committed to meet the firm’s needs. If independent, the owner shows commitment to the continued success of the firm. If part of a wider group, there is a reputable parent with continued commitment and resources, with the IA viewed as an important part of the Group’s focus.	4
Good – Mid-tier independently owned money manager and/or wholly owned subsidiary of reputable parent. If independent, the owner has the necessary resources and commitment to pursue the firm’s continued success. If part of a wider group, a recognized parent with available resources to support the IA.	3
Fair – Bottom tier independently owned money manager. If independent, the owner has previously made available resources to meet firm’s needs to maintain necessary control mechanism. If part of a wider group, limited resources and commitment from parent.	2

Marginal – Small independently owned money manager. Owner shows little commitment or resources available to continue to support the firm.	1
Weak – Newly formed money manager or money manager whose owner has limited industry commitment. Owner’s willingness to commit necessary resources are unclear and succession line unclear. Ownership may have the potential to, or actually does, exercise a negative impact on the IA.	0

Number of Years in Existence: Risk Weighting 10%

Longevity, persistency and survivorship of an IA is an important attribute giving indication that the manager has experienced and survived various market conditions, market cycles, and changing regulatory and client needs. Generally, the longer an IA has been in business, the more established and seasoned their risk control systems and proven track record to attract, retain and develop long standing relationships with clients, key service providers and other constituents.

However, whilst the number of years in existence is an important attribute, newly created IAs with an experienced IA parent should not be penalized. In these situations the Analyst can substitute the parent’s years of experience for that of the individual legal entity under review. Note that newly established IAs without an experienced parent but with highly experienced employees will be penalized under this Ratings Driver, although the employees accumulated experience is credited under the Expertise section (see below).

Number of Years in Existence	
>= 25 years	5
>= 15 years	4
>= 10 years	3
>= 5 years	2
>= 1 year	1
< 1 year	0

Corporate Governance: Risk Weighting 15%

Corporate governance reviews an IA’s risk management, internal compliance and regulatory control mechanisms. If the firm demonstrates strong internal controls and procedures, there is less likelihood of future issues arising; similarly, if issues do arise, the quicker and more comprehensively these issues are likely to be dealt with and the greater comfort Analysts can take that future issues will not be allowed to persist or propagate. Rating Factors to be considered include:

- Senior Management’s expertise and stability
- Sophistication and comprehensiveness of Firm’s risk management and compliance philosophy and capabilities
- Are there independent and dedicated compliance, audit, risk management or other oversight committees; how transparent and high profile are these committees?
- Public-listing requirements e.g. disclosure, third party directors/independent board, and internal control standards
- Quality of external accountants
- Regulatory issues – has the IA been susceptible to regulatory issues; are there common issues facing all industry participants or is the IA facing more or less issues than peers; is there evidence that the firm has responded in a positive and timely manner to issues that do arise?
- Past/present litigation
- Current and significant news events
- Any corporate governance issues at affiliates

- “Key man” risk in the risk management & corporate governance structure; quality of employees

Corporate Governance	
Excellent – Exceptional risk management capabilities. Full public transparency. Majority independent board and full range of oversight committees. Limited or insignificant regulatory investigation and litigation and positive current news. Highly regarded senior management with vast expertise and industry experience. No Key Man issues.	5
Strong – Strong risk management capabilities. Public transparency of risk management and compliance. Independent board members. Well recognized senior managers with significant expertise. Some regulatory investigation and litigation; positive current news and any infractions have been swiftly resolved.	4
Good – Above average risk management capabilities with transparency. Experienced senior management team. Regulatory investigation and litigation. Current news show evidence of the firm addressing regulatory, compliance and risk management issues.	3
Fair – Adequate risk management capabilities with limited transparency. New management team to the firm but extensive industry experience. Significant regulatory investigation and litigation. Positive current news or current news shows evidence of the firm beginning to address control issues.	2
Marginal – Limited risk management capabilities with little transparency. Senior managers have limited industry experience and expertise. Significant regulatory investigation and litigation. No clear evidence of addressing regulatory concerns.	1
Weak – Little risk management capabilities. Senior manager have limited industry experience. No transparency. Significant regulatory charges with little change in risk control policies. Negative current news. Ineffective oversight committees.	0

Market Drivers: Risk Weighting 65%

Regulatory Environment: Risk Weighting 25%

IAs are often regulated for Investor Protection along two main dimensions:

- Disclosure – ensure that investors are provided with accurate and appropriate information prior to placing money with IAs (e.g. Prospectus standards) and during the course of their investment holding period (e.g. Financial Reporting standards). A regulated IA must therefore establish minimum procedures to meet such reporting requirements and will therefore be more likely in a position to identify and rectify deficiencies.
- Financial crime – identify and prevent IAs from operating if there is doubt surrounding their “fit and proper” nature e.g. spotting the potential for investor abuse and fraud.

However, if the investor base targeted by the IA is considered sophisticated such as institutional accounts and/or high net worth individuals as opposed to retail investors, Regulatory Authorities generally impose a reduced or minimized regulatory burden on IAs.

When rating the IA, analysis of the Regulatory Environment addresses two main aspects:

- Quality of the Regulations – in particular, what is the breadth and depth of the regulations that apply to the IA. If the IA is covered by multiple jurisdictions and/or various levels within any individual jurisdiction (e.g. registered as both retail and institutional fund manager) then the most onerous regulations should be considered, provided the IA has a material business under that environment.

- Quality of the Enforcement – in terms of the quality of staff, frequency of on-site visits, ability to impose fines, reputation for “firm-but-fair” treatment, independence from “regulatory capture” by both local politicians and the local financial services industry etcetera.

From a rating perspective the quality of the Regulatory Environment can vary even within a single environment. For example, in the US retail fund managers are highly regulated but Hedge Fund managers are simply required to register.

Regulatory Environment	
Excellent – Regulatory regimes with a global reputation as standard setters for the quality of both the rules and enforcement. The Retail Investor protection environment in the EU (UCITS) and US (1940s Act) is deemed to merit “Excellent”; the IA must be regulated as a retail investment provider to benefit from a rating of excellent.	5
Strong – Generally well regarded regime that tends to follow global leaders and impose local variants of global standards. Enforcement is similarly positioned – reasonable but with lower enthusiasm and/or expertise and experience than more mature, deeper and wider regulatory environments.	4
Good – Whilst fundamental items pertaining to Investor protection are covered to a reasonable degree, there are some minor deficiencies in both the regulations and enforcement for more complex issues. This is likely to be due to the relative immaturity of the investment management industry.	3
Fair – Regulations exist but there are doubts over the coverage of the rules and whether they achieve the intended impact. Enforcement is patchy with limited onsite inspections, low skilled staff and the suspicion or occurrence of regulatory capture has eroded the reputation of the regulatory authority.	2
Marginal – Regulated IAs, but severe doubts exist over both the quality of the rules and their enforcement. For example, aside from the need to register, for all intents and purposes the IA is unregulated. Under the current regime, Hedge Fund Managers in the US qualify for a rating of “Marginal”.	1
Weak – Unregulated IAs.	0

Client Base: Risk Weighting 15%

Client base primarily measures an IA’s ability to attract and retain a sophisticated (“smart money”) and broad client base. Sophisticated investors perform a high level of due diligence on the advisor including its risk management, compliance and other control mechanisms when deciding to invest monies; CRM takes additional comfort from this oversight and due diligence processes. Similarly, the breadth of the client base is an important measure; a single sophisticated client carries less currency than the ability to attract and retain a stable of independent, sophisticated investors. We consider sophisticated clients to include high net worth individuals (HNWI) and institutional clients with an active investment management oversight committee. These clients may be purchasing standard retail products but are more likely to be purchasing bespoke investment products, investing in products specifically targeted to sophisticated investor groups, or otherwise engaging the IA to manage a portion of their overall financial assets.

Similarly, if other agents sub-contract business to the IA under review, we take additional comfort that the IA has been subject to an additional layer of scrutiny. An IA that is diversified across HNWI, active institutional clients and sub-advisory roles is considered stronger still because the due diligence of each of those relationships will have slightly different emphasis. Rating factors to consider include:

- Client sophistication – Institutional vs. HNWI vs standard retail clients

- Client composition – breadth and diversity of AUM base
- Sub-advisory arrangements
- Ability to attract and retain clients
- Number of accounts – the more concentrated/smaller the client base; not only is the IA less “popular” but is also more likely to “bend the rules” to keep its clients.

Client Base	
Excellent – Client base is diversified and a significant proportion is considered sophisticated. Large institutional or HNWI client base demonstrating "sticky money". Extensive sub-advisory business. Exceptional ability to attract and retain clients and strong client relationship; indeed, certain client relationships may be considered strategic or consultative in nature.	5
Strong – Client base includes a large proportion of sophisticated clients, with wide client diversification. Sizable institutional or HNWI client base or with demonstrated "smart money". Strong ability to attract and retain clients, and to build client relationships. Meaningful sub-advisory business.	4
Good – Client base with a meaningful number of sophisticated clients. Sub-advisory business may not be material.	3
Fair – Client base has a modest number sophisticated clients, mainly small institutional clients and/or second tier HNWI. Does not focus on attracting larger institutional accounts.	2
Marginal – Client base has only a small number of sophisticated clients. Weak ability to attract or retain "smart money" clients or concentration in the retail client base.	1
Weak – Client base essentially composed of unsophisticated investors. No evidence of ability to attract and retain sophisticated clients.	0

Franchise: Risk Weighting 25%

Franchise assesses an IA’s ability to generate AUM, develop multiple business streams, and to create and maintain a strong brand identity. Whilst absolute AUM is an objective measure of franchise, this Driver also seeks to identify how the franchise is perceived and how this compares to its competitors. Rating Factors to be considered include:

- AUM & Market Share. Analysts should note that many of the larger IAs are global in scope and will have asset management subsidiaries located in major financial centers around the world, and often the split of AUM into local units is not disclosed. As such, Analysts are entitled to apply the aggregate AUM for the IA’s legal family when assessing Franchise
- Brand identity, strength and recognition of the IA’s name
- Brand identity, strength and recognition of its fund family(ies)
- Peer ranking
- Width of franchise – global, regional or local
- Depth of Franchise – brand/name recognition; loyalty of client base, “hot” versus “sticky” money (“sticky” refers to monies that are left with the IA for longer periods of time compared to “hot” money that churns over in the short term as investors may find the IA is not consistent in its capabilities or is volatile in delivering results)
- Niche versus diversified strategy and product range
- Related brand identity, strength and recognition of any affiliates

Franchise

Excellent – IA is a very well known and instantly recognizable with positive connotation. It is a thought leader and exerts meaningful influence in shaping market practices. AUM compares extremely favorably to peers and is generally sticky. There is significant brand value associated with the IA/fund family name. Multiple business streams and product offerings. If part of a wider group, the group also has wide brand loyalty and significant brand value.	5
Strong – IA is widely recognized with positive connotations. Relatively high market share(s), multiple business streams and product offerings. AUM compares favorably and is sticky. Fund brands are highly regarded and typically well ranked. A recognized presence in markets serviced.	4
Good – reasonably well recognized IA. Market share is reasonable and generally compares favorably to peer group. Demonstrates a fairly successful track record in attracting, maintaining and managing AUM. Multiple business streams and product offerings, or strong and defensible niche offerings.	3
Fair – Likely to be secondary niche player or small scale manager not well known outside of core business lines. Limited distribution network and product offerings; products lines tend not to show significant market share. AUM is modest or perhaps a little on the low side compared to peer group.	2
Marginal – Limited brand name recognition. Relatively low AUM and market share for small number of product lines, and often investors are considered “hot money”. Brand name or reputation may have suffered some damage. No discernable competitive advantage means ease of substitution introduces client flight risk. Performance and ranking not consistent.	1
Weak – Little or no name brand recognition or brand strength both at the IA and fund family. No competitive advantage, and product offerings are subject to commoditization; manager competes on fees, easy liquidity provisions, etcetera. Substantial “hot” money in client base.	0

Appendix 7 – Special Purpose Vehicles

Definition

A Special Purpose Vehicle (SPV) is defined as a type of debt funded collective investment scheme through which investors primarily take on credit risk, and with either or both of the following features:

- assets are introduced to the vehicle via securitization and/or primary issue rather than by purchase in the secondary market; these may be financial assets or physical assets; and/or
- debt is issued in tranches and the lower tranches deemed risk sharing and interest can be suspended without triggering a default through failure to pay

There are two main categories of SPVs:

- Securitization Vehicles such as Mortgage Backed Securities and Asset Backed Securities, and
- Structured Credit Vehicles such as Cash flow Collateralized Debt Obligations (Cash Flow CDOs)

This scorecard framework does not cover Lehman SPVs. Lehman SPVs are designed to provide an individual investor (or small group of investors) with a note (or series of notes) that has a pre-defined pay-off explicitly referencing the performance of another asset or investment strategy, which may not include any credit risk features. Lehman usually executes one or more OTC derivatives contracts with the SPV in order to provide the SPV with the required note pay-off; the SPV normally has no other trading relationships.

This scorecard framework does not cover Lehman's Counterparty credit relationship with private equity, venture capital and real estate vehicles, nor does it cover other types of SPVs that exist to acquire and hold financial assets for external investors. In addition, Market Value CDOs and SIVs are covered under the Collective Investment Schemes scorecard.

Internal Credit Rating

Introduction

ICR assignment for SPVs is complicated by four factors

1. Establishing a rating for the "senior unsecured level". Swap providers often rank above or pari passu with the senior secured note holders for payment but do not usually have any additional rights over the senior note holders, and a payment default to the senior note holders normally triggers the structure's unwind. However the note holders may also benefit from cash flow diversion techniques that do not usually benefit swap counterparties. CRM normal practice is therefore to rate the SPV at the level of the most senior note holders outstanding but *excluding* the benefit these note holders obtain from Coverage Tests and early principal amortization; therefore the ICR will not be directly comparable to the External Agencies rating for the most senior outstanding notes.
2. Solving for Probability of Default (PD). The SPV's structural mechanisms (e.g. coverage ratios) and features (e.g. debt tranching) usually results in very few situations where a Senior Note holder payment default occurs, even if the collateral pool is under severe stress. Lower tranche debt is usually able to suspend and reinstate interest payments based on pre-defined rules. ECAI ratings do not establish a pure probability of default but rather S&P rates the Probability of Loss (PL) and Moody's rates the Expected Loss (EL). Similar to 1. above, because the PD-based ICR is not comparable with a PL or EL-based approach, the ICR will not be directly comparable to ECAI

ratings. Many SPVs also have stipulated “Events of Default” to include coverage test breaches as well as missed payments.

3. CRM rate the probability of default based on payment default rather than technical default relating to breach of a covenant in any facility with Lehman Brothers. Therefore, for the purposes of assigning the ICR, CRM ignores technical events of default. However, the existence of a conservative coverage test as a program-wide Event of Default will usually trigger a suspension of payments and commence unwind of the collateral, which has positive implications for recoveries especially if the unwind commences before the collateral value has eroded significantly and/or material note repayments have occurred.
4. Identifying the appropriate tenor for the rating. ICRs are normally established through-the-cycle. For SPVs with termination dates (e.g. CLOs) the ICR should reflect the period between Rating Refresh date and structure termination date, and not reflect the life of the transactional relationship. For an SPV that maintains a stable profile this might naturally result in ratings upgrades over time as the outstanding rating horizon shortens and uncertainty reduces. For SPVs with no pre-set termination dates (i.e. ABCPs) the rating extends for a period that would capture normal market stresses in terms of both asset quality and refinancing risk.

CRM consider three major Rating Drivers in establishing the ICR for a third party creditor:

- The first step is the Collateral Evaluation which assesses the asset pool components and investment guidelines in order to form a view over the behavior of the pool. Virtually all defaults by SPVs are originated in deteriorating collateral and thus the Collateral Evaluation has the highest weighting. This step also includes a review of the pool’s actual performance which is often tracked against coverage ratios and clearly evidenced in ECAI rating changes.
- The second step is to review SPVs Structural Features to establish cash flow allocation rules and in particular to identify the potential for structural subordination facing swap counterparties. Structural Subordination is defined in this framework as the diversion of asset generated cash flows to bond investors ahead of third party creditors (i.e. swap providers) despite the fact that swap counterparties usually rank ahead of investors in the priority of payments. This might arise because excess spread is paid out rather than reinvested, or because Coverage Tests are breached and notes are retired whilst the swap Counterparty retains its existing trade terms i.e. the relative balance of swap Counterparty exposure versus investor goes increasingly against the swap Counterparty. For finite life vehicles notes may be paid down early, in order of note priority, due to the receipt of principal payments on the underlying assets, and the average life of notes is therefore likely to be shorter than the final maturity date. The Structural Features review also determines whether non-Credit Risks are well covered and particular comfort is taken if the SPV is rated by External Agencies because this evidences that an independent, formal review has taken place.
- Under the final step the Analyst reviews Third Party Risks with a focus on the Investment Manager, Sponsor, Originator, Custodian and/or Service Agent. In particular, the Analyst assesses whether the key third parties reputable, reliable, solvent, likely to continue to act in the SPV’s best interest, and likely to balance the various conflicts of interest?

ICR Rating Driver	Risk Weighting	Risk Weighting
Collateral Evaluation	50%	
Collateral Quality		15%
Collateral Diversification		15%
Collateral Performance		20%
Structural Features	15%	
Cash Flow Diversion		7.5%
Outstanding Notes		7.5%
Third Party Risks	35%	

Relevant Experience		20%
Agent Standing & Reputation		15%
Total	100%	100%

Whilst not designed to replicate External Agencies, the ICR is intended to reflect some key characteristics and behaviors of ECAI ratings:

- Most SPVs are constructed to minimize defaults and losses to senior investors such that the most senior notes are initially rated AAA/Aaa/AAA; swap counterparties usually rank senior to, or pari passu with, senior note holders for recurring payments. The Conversion Table is designed to recognize that SPVs are initially established as high quality vehicles.
- ECAI SPV ratings have greater stability than normal Counterparty ratings because asset pools have lower idiosyncratic risk features compared to individual issuers. In the SPV scorecard framework 72.5% of the Ratings Drivers' scores will normally be static unless, for example, it becomes apparent that a manager is pushing the envelope of allowable investments, the quality of the manager changes, or, in the case of ABS, a particular asset class begins and continues to behave outside of prior expectations. Only 27.5% of the available score is expected to vary over time i.e. the performance of the asset pool and the notes outstanding.
- SPV ratings that do change tend to change by multiple notches. The conversion table is constructed such that should the SPV begin to score progressively more poorly it may jump several notches rather than progress smoothly through the scale.

ICR Conversion Table

Rating Driver based ICR	Rating Drivers' Weighted Score	
	>	<=
iAAA	85	100
iAA	70	85
iA+	60	70
iA	50	60
iA-	45	50
iBBB+	41	45
iBBB	37	41
iBBB-	33	37
iBB+	29	33
iBB	25	29
iBB-	21	25
iB+	18	21
iB	16	18
iB-	14	16
iCCC	0	14

Collateral Evaluation: Risk Weighting 50%

The Analyst first reviews the Asset pool for three elements:

- The likely credit experience of the pool. This is largely determined by the quality of the assets in the pool.
- The distribution of the likely credit experience of the asset pool. This is largely determined by the diversification – concentrations and correlations – of the pool.

- The actual credit experience of the pool. This can be assessed based on compliance with any tests (e.g. coverage, collateral quality), ECAI performance reports and by noting any changes in ECAI ratings (direction, magnitude, timing and trend). Deals underwritten by Lehman may be followed and reported on by the Structured Credit Research Group.

Collateral Quality: Risk Weighting 15%

Assessing the quality of the assets in the pool generates a view over the likely credit risk/loss experience of the assets. This is primarily driven by the nature of the assets (senior loans, credit card receivables, mortgages, high yield bonds), the credit standing of the issuers of these obligations (the likelihood of default), the security behind the assets (secured or unsecured obligations), and any other credit enhancement features on the asset side. If exposure to counterparties forms a material element of the SPV's assets then the rules around Counterparty quality might also be examined. The analysis will differ between securitization vehicles with large pools of homogenous assets, and structured credit vehicles with smaller pools of heterogeneous assets. Rating Factors include

- Securitization Vehicles:
 - Review of qualification criteria; the historical loss experience of vehicles with similar asset pools
 - Where relevant, this might include an assessment of the Originator and its ability to assess and represent the portfolio risk characteristics accurately.
 - MBS and certain ABS vehicles, such as credit card receivables, are likely to score well, although other types of ABS vehicles such as Aircraft Leasing vehicles are likely to score poorly.
 - ABCP multi-seller programs may score more highly than single seller programs
- Structured Credit Vehicles:
 - Rating rules with respect to individual assets
 - Security behind the individual assets
 - Ratings rules with respect to the overall portfolio (e.g. Weighted Average Rating Factor Test)
 - Recovery rules with respect to the overall portfolio (e.g. Weighted Average Recovery Rate Test)

Collateral Quality	
Excellent – Extremely low credit loss experience expected due to the belief that underlying assets will demonstrate a low probability of default and high recoveries based on good quality security backing those assets. Agencies and other high end financial securitizations (e.g. prime mortgages), bonds issued by AAA and high/mid AA range issuers, money market funds and short dated money market, CD and CP etcetera issued by well rated financial institutions would generally merit “Excellent”.	5
Strong – Low credit loss experience expected due to the combined impact of the probability of default and recovery expectation. The difference between “Excellent” and “Strong” is one of degree. Structured Credit Vehicles predominantly investing in secured investment grade obligations, short term discount paper issued by investment grade issuers, unsecured assets in the higher Investment Grade ranges, and sub-prime financial securitizations would generally merit “Strong”.	4
Good – Whilst a low credit loss experience is expected, the assets could begin to deteriorate in adverse economic environments. Structured Credit Vehicles predominantly investing in unsecured investment grade assets in the BBB range, term fixed income assets issued by investment grade issuers and/or short dated discount paper issued by sub-investment grade issuers would generally	3

merit “Good”.	
Fair – Assets are somewhat speculative, particularly in an adverse economic environment. Structured Credit Vehicles predominantly investing in secured high yield assets (BB or mid to high single B) would generally merit “Fair”.	2
Marginal – Assets are somewhat speculative, particularly in an adverse economic environment. Structured Credit Vehicles predominantly investing in unsecured high yield assets (BB or mid to high single B) and/or distressed loans with material expected recoveries would generally merit “Marginal”.	1
Weak – Material loss experience expected. Individual assets are under performing and/or distressed, and there may be limited expectation of recovery in the event of an asset defaulting. Structured Credit Vehicles predominantly investing in the lower end high yield securities would generally merit “Weak”.	0

Collateral Diversification: Risk Weighting 15%

The distribution of expected losses in any given asset pool is due to concentrations within, and correlations between, the assets. The less diversified an asset pool the greater the impact of idiosyncratic risk and the less likely the pool is to behave in a predictable manner (i.e. the distribution of losses may be wider than expected). Similarly the more correlated the assets the greater the likelihood that either no assets default or all assets default; the higher the correlation the less normal the loss distribution, and in the extreme the loss distribution will become bimodal. If exposure to counterparties forms a material element of the SPV’s assets then the rules around Counterparty diversification might also be examined. Rating Factors include

- Securitization Vehicles:
 - Number of underlying assets
 - Concentrations from originators, regions, industries or other measures of obligor type
 - MBS and certain ABS vehicles, such as credit card receivables, are likely to score highly, although other types of ABS vehicles such as Aircraft Leasing vehicles are likely to score poorly.
- Structured Credit Vehicles:
 - Restrictions on the relative size of each individual underlying asset & obligor; number of underlying assets
 - Restrictions on the relative size of obligations from issuers within the same industry or region
 - Rules around holding concentrations in particular types of assets such as equity securities, defaulted securities, or other high default risk assets
 - Rules around holding structured finance securities; ratings on structured finance securities are less volatile than corporate issuers but if the ratings change they tend to change by a number of notches, and recoveries on lower rated tranches are likely to be far lower than recoveries on similarly rated corporate securities. Vehicles with a material level of Structured Finance obligations may be viewed conservatively due to this individual bimodal behavior and also the possibility that the same underlying assets might lie behind separate structured finance securities such that the structured finance securities show some degree of correlation between themselves.
 - Rules around holding structured finance securities underwritten by the same bank or managed by the same investment manager.
 - Portfolio wide diversification rules such as Moody’s Diversity Test

Collateral Diversification

Excellent – Very large pool of assets; each individual asset is very small in the context of the pool, and each individual obligor is unique and considered to be independent of all other obligors in probability of default. Concentration rules result in a wide spread by issuer and across asset classes, sectors and/or regions such that correlation risk is minimized. Risks in any single sector, market, region etcetera would not meaningfully impact the overall portfolio. Large financial securitizations and geographically well spread MBS securitizations would generally merit “Excellent”.	5
Strong – Large pool of assets with each individual asset small in context, and asset defaults are expected to behave independently. Concentration rules result in a wide spread by issuer and across sectors and/or regions such that correlation risk is small. Risks in any single sector, market, region etcetera should not meaningfully impact the overall portfolio. The difference between Excellent and Strong is one of degree. Smaller financial securitizations and MBS securitizations with some geographical concentrations would generally merit “Strong”.	4
Good – Reasonable sized pool of assets with individual assets relatively small; spread across many different issuers without any unusual concentrations; idiosyncratic risk is meaningful, but unlikely to dominate. A typical CDO would generally merit “Good”.	3
Fair – Reduced pool of assets with individual assets material in context; some concentrations in certain asset classes. Vehicles specializing structured finance securities, though still holding different types of these securities (e.g. CDOs, ABS & MBS), would generally merit “Fair”.	2
Marginal – Relatively low number of individual assets focused on a limited range of asset classes. Possibility for meaningful correlation. Vehicles specializing in structured finance securities of particular types would generally merit “Marginal”.	1
Weak – The SPV is focused on a particular asset class and individual assets are material in context. Idiosyncratic risk dominates the portfolio. Correlation is likely to be high as asset defaults are usually driven by common features.	0

Collateral Performance: Risk Weighting 20%

This Rating Driver tests two main aspects. Firstly, is the actual pool construction consistent with the guidelines that the manager is expected to be following? If the SPV is still in its reinvestment period or is a revolving program (e.g. ABCP) then a continued breach of guidelines is more disturbing than breaches arising during a CDO’s amortization period when the manager’s ability to rectify breaches is more limited. Secondly, is the actual loss experience consistent with the loss experience expected based on the pool guidelines? These two issues can be assessed using information from the SPV concerning its compliance with any tests, and by noting any changes in Agency ratings (direction, magnitude, timing and trend).

Pool performance can vary over time, and a pool that has performed within expectations may not continue to do so, and vice versa. In particular, for a finite program drawing close to maturity it is unlikely that the pool performance will change significantly. In these situations the Analyst is entitled to notch this Rating Driver score up to reflect the fact that the probability of default for the structure will likely reduce over time as the potential for asset pool volatility reduces.

Until the pool has seasoned and meaningful performance data is created, new programs in an established asset class managed by well regarded managers will generally be rated “Good”, and those programs managed by less well regarded managers will generally be rated “Fair”.

Collateral Performance	
Excellent – Pool has significantly outperformed versus expectations; lower tranche notes have been upgraded.	5
Strong – Performed above expectations; no guidelines or triggers have been breached; lower tranche notes may have been upgraded.	4
Good – Performed in line with expectations; no significant guidelines or triggers have been breached; triggers that have breached have been rectified. Ratings are unchanged since inception.	3
Fair – Performance has been a little under expectations; significant guidelines or triggers may have been breached on occasions but have been rectified in short order. Ratings are unchanged since inception.	2
Marginal – Performance has been disappointing; various guidelines and triggers have been breached and the breaches have been persistent. Notes may have been downgraded.	1
Weak – Performance has been disappointing; various guidelines and triggers have been breached and there is no expectation of recovery. Notes have been downgraded on several occasions.	0

Structural Evaluation: Risk Weighting 15%

The review of the SPVs structure involves three aspects:

1. Assessing the removal of non-credit risks. SPVs are constructed with the intention of providing investors exposure to credit risk in the underlying assets, and hence SPVs are structured to minimize the impact of non-credit risks. For example
 - The assets and cash flows of the SPV are housed and monitored in separate accounts at a third party agent institution which must usually fulfill certain rating and capitalization rules
 - Interest rate and currency risks are controlled by rules over the fixed / floating asset mix, the extent of PIK-able and zero coupon assets, and by the use of interest rate hedges
 - Counterparties providing such hedges and other trading products such as CDS must be well rated themselves
 - Liquidity for vehicles with refinancing risk is closely controlled through cash flow predictions

Analysts can take comfort that if an SPV is rated by external agencies (a) its structure has been formally and independently reviewed prior to inception and (b) the structural arrangements are subject to ongoing review. SPVs that are not rated by external agencies are rare. If Lehman chooses to deal with an unrated SPV the Analyst should review the structure to evaluate and become comfortable with the structural controls around these risks, but whilst the principals of this scorecard framework still apply CRM, expect that the SPV will need to be reviewed and rated on an exceptional basis.

2. Assessing the potential for structural subordination by reviewing cash flow diversion rules. This step also includes a review of the program-wide Events of Default to anticipate any features that might accelerate or delay the occurrence of a default event.
3. Assessing actual structural subordination by comparing current outstanding notes to inception amount.

Cash flow diversion: Risk Weighting 7.5%

Structural subordination is defined in this policy as arising when the SPV contains one or more mechanisms that divert asset generated cash flow, in excess of that needed to service the notes' interest, to investors rather than being reinvested back into the structure or being used to reduce the exposures of third party creditors. In that way the relative exposure of the swap counterparty increases relative to the investors. Structural subordination could increase the probability of default for the swap counterparties because value has been removed from the SPV and the remaining assets may be less diversified and potentially less liquid, weaker performing assets. Structural subordination also reduces the potential recoveries in the event of a default for the same reason.

There are four main ways that structural subordination can arise:

1. One or more of the notes is structured to amortize principle over time rather than repay in bullet format at legal maturity.
 2. Excess spread is passed through to subordinated investors rather than reinvested into the structure; paying out the excess spread benefits the subordinated investors rather than other creditors and investors.
 3. Early principal repayments on the underlying assets, such as mortgage prepayments, are often passed through to investors as early note repayments as a function of note seniority.
 4. Breach of Coverage Tests such as the Overcollateralisation (OC) and Interest Coverage (IC) tests lead to income being used to retire senior notes until the breach has been rectified.
- Revolving programs: generally “Excellent” because the majority of notes are refinanced rather than repaid from liquidating collateral or diverting excess spread. Deteriorating collateral performance will normally be picked up by trigger mechanisms that benefit all investors and creditors whilst there is still significant collateral value remaining and usually without triggering a program wide default event. Refinancing risk is assessed and monitored by Agencies e.g. ABCP Liquidity Enhancement. If there is any question over these mechanisms functioning as expected, or they do not exist, then the SPV will be conservatively treated and generally score “Weak”.
 - Finite programs: generally score poorly because Coverage Tests are often diversions in the waterfall prior to default in order to support the senior notes' ratings, or collateral pre-payments are simply passed through to note holders. A key exception is when Lehman is only trading via a Balance Guaranty trade(s). In this situation the swap will unwind in line with the assets and/or notes and are accommodated under the definitions for “Excellent” and “Strong”.

Cash flow diversion	
Excellent – There is no cash flow diversion to the detriment of swap counterparties. Substantially all excess spread and principal proceeds etcetera are retained in the structure. Notes do not pay down prior to legal maturity. Alternatively, Lehman’s relationship is wholly via a balance guaranty trade which is linked to the collateral balance.	5
Strong – Limited leakage outside of the structure; excess spread is paid out but there are no expectations of principal repayment ahead of legal maturity. Coverage tests divert cash flow back into the structure for the benefit of all creditors. Alternatively, Lehman’s relationship is wholly via balance guaranty trade which is linked to the relevant notes balance.	4
Good – Excess spread is paid out but prepayments and coverage tests materially reinvest into the structure.	3
Fair – The structure diverts cash flow to investors in several ways. The Coverage test would be expected to reference all or a majority of the outstanding notes and to persist through the majority of the SPV’s life. However, coverage tests are not too demanding, notes may amortize prior to legal maturity but only due to pre-paying collateral, and there may be	2

mechanisms early in the SPVs life that seek to retain some of the excess value via reserve accounts.	
Marginal – The structure diverts cash flow to investors in several ways including scheduled principal repayments or provisions for accelerating notes in the event of collateral deterioration via conservatively set coverage triggers that reference all tranches of notes. No mechanisms for reserve accounts.	1
Weak – Cash flow diversion is a significant feature of the SPV and swap counterparties have a non-trivial risk of becoming structurally subordinated; notes amortize or can be accelerated, prepayments on collateral is paid out, excess spread is distributed, and conservative coverage ratios ensures all notes benefit from acceleration in the event of deteriorating collateral.	0

Outstanding Notes: Risk Weighting 7.5%

Actual structural subordination can be proxied by reviewing the balance of outstanding notes compared to the balance at inception. Unlike diversion of excess spread, any note repayments are likely to have caused the collateral balance to physically reduce. The ratio is calculated as Current Outstanding Par Value of Notes / Outstanding Par Value at inception. This measure is only meaningful for finite structures; SPVs established as revolving programs will be assigned a score of “Excellent”.

Outstanding Notes	
Excellent – Between 90% and 100%	5
Strong – Between 80% and 90%	4
Good – Between 70% and 80%	3
Fair – Between 60% and 70%	2
Marginal – Between 50% and 60%	1
Weak – < 50%	0

Third Party Risks: Risk Weighting 35%

There are three main types of Third Parties involved in SPV vehicles:

- Those associated with structuring and handling the transaction (Originator, Servicer, Manager and Trustee)
- Those that provide direct credit enhancement in some structures (Monolines, Liquidity Providers)
- Day-to-day external Counterparties (Counterparty Rules)

Third party risks re: credit enhancement¹, Originator and Counterparty Rules are considered in the Collateral Evaluation.

The focus of attention in this Ratings Driver is the Investment Manager, Sponsor, and/or Service Agent, as relevant. The Quality of the Agent is extremely important in the Analysis of the SPV because, regardless of the asset pool guidelines and structural features, decisions made by the lead Agent have a direct bearing on the performance of the SPV.

¹ Or as a scorecard override if the credit enhancement applies on the liability side and includes swap counterparties.

The analysis is split into two sections (a) Agent direct experience and track record in managing other SPV or alternative investment vehicles and (b) a general view over the Agent’s standing and reputation.

- The primary agent for Structured Credit Vehicles is the investment manager. Usually the investment manager is active across a wide range of vehicles such as mutual funds, institutional funds etcetera as well as SPVs. In these situations the Agent Standing and Reputation Driver is assessed in a similar fashion to typical Investment Advisor analysis; if an I/A ICR has been assigned using the Regulated Investment Advisors Scorecard Framework then the Analysts can use this ICR to score this SPV Rating Driver. If the investment manager is also a credit strategy hedge fund manager then reference can be made to the relevant Hedge Fund Team analysis for Driver (a), and the Analyst should then combine the analysis such that the score assigned to Driver (a) is also the score assigned to Driver (b).
- The primary agent for Securitization Vehicles is either the service agent or the program sponsor. Agents for securitization vehicles are often specialists, and in these cases a review of their general standing would be no different to their direct experience in managing SPVs. In these situations the Analyst should combine the analysis such that the score assigned to Driver (a) is also the score assigned to Driver (b). It is important to note that the default of the service agent may also have credit implications for the SPV, especially in situations where the market for that service is limited and replacement may take an extended period during which time the SPV’s assets remain untended.

Relevant Experience: Risk Weighting 20%

When reviewing the Agent’s relevant experience, the following Rating Factors may be considered:

- Relevant experience (number of years managing SPVs; SPV AUM)
- Performance of similar structures; rating changes and trigger events
- Reputation in the SPV space; evidence of a repeat customer base
- Any reliance on key individuals; biographies; number of employees & growth rate
- Incentive structure
- Investment Process
 - Credit evaluation and available resources
 - Buy/sell discipline
 - Checks & balances
- Financial, operational and technical support and resources available to the SPV business; nature of sponsors.

Relevant Experience	
Excellent – Top tier player & industry leader in the relevant SPV space with significant experience, and sufficient resources committed to maintain this position. Likely to have a large number of similar SPVs already in existence.	5
Strong – Top tier and well regarded agent with a wide range of experience in the relevant SPV space. The difference between Excellent and Strong is one of degree; for example, there may be a smaller number of key individuals, the years in business may be < 10yrs, or the alternative AUM < USD5bn.	4
Good – Second tier agent in the SPV space with adequate committed resources; has relevant experience and a track record of successfully managing a limited range of similar vehicles.	3

Fair – Second tier agent in the SPV space with adequate committed resources; the difference between Good and Fair is one of degree. For example, the years in business may be < 5yrs or the alternative AUM < USD1bn	2
Marginal – The agent is known in the SPV business but is not well regarded perhaps because existing SPVs are limited in size and history, and/or trigger have been breached on more than one occasion; potentially limited resources to support the SPV business	1
Weak – Limited resources available to support the business; weak reputation, experience and commitment to the relevant SPV space; agent not known and no information available.	0

Agent Standing & Reputation: Risk Weighting 15%

If the Standing and Reputation Driver is assessed independently from the Experience Driver, the score should be assessed with reference to the six key Ratings Drivers under the **Regulated Investment Advisors Scorecard Framework** (I/A Scorecard).

Agent Standing & Reputation	
Excellent – Merits iAAA per I/A Scorecard	5
Strong – Merits iAA per I/A Scorecard	4
Good – Merits iA per I/A Scorecard	3
Fair – Merits iBBB per I/A Scorecard	2
Marginal – Merits iBB per I/A Scorecard	1
Weak – Merits iB or below per I/A Scorecard	0

Internal Facility Rating

Introduction

The expected recovery rate for an SPV is extremely difficult to establish. Whilst corporate borrowers tend to default, go through a workout period and establish the loss given default in a timely manner, most structured finance securities cannot default (SPVs are bankruptcy remote) but tend to lose value over their lifetime – including suspending and reinstating interest for subordinate tranches in accordance with deal documentation – depending on the nature of the underlying cash flows and the tranche’s position in that particular SPV’s waterfall. The overall loss can only be established at maturity which could be 10 or 20 years after interest was first suspended and, combined with the extremely low incidence of default and the relative youthfulness of much of the SPV market, there is very little empirical data available. Data that does exist relates to recoveries for lower tranches and is therefore not indicative for senior notes and/or third party creditors.

Generally speaking, recovery rate assumptions rather than empirical data are used in ECAI expected loss modeling. However ECAI assumptions are not necessarily available and not wholly relevant to swap providers: swap providers may rank senior or pari passu to note holders in the waterfall but other mechanisms may exist to preserve note holder capital that do not benefit swap providers (e.g. cash flow diversion triggers, enforcement proceedings).

The IFR for a Counterparty using the Special Purpose Vehicle Scorecard is assigned using the Fund Form of the Ratings Driver Based Approach which starts with the following proposition:

- if the SPV triggers an unwind whilst value still remains in the asset pool, and
- if Lehman Brothers ranks towards the top of the waterfall

then CRM expects to recover a greater proportion of Lehman Brothers exposure at default and will assign a higher IFR than if these conditions are not met. Therefore IFR assignment begins with an assumed recovery of 100% which then reduces based on the outcome of various Rating Drivers. CRM believes that in situations where Lehman is senior to the note holders recoveries from trading with SPVs should be towards the upper end of the recovery rating scale. On the other hand, subordinated positions are likely to result in limited to negligible recoveries. Since unwind procedures are spelled out in the deal documentation, CRM believes that SPV workouts are unlikely to face legal uncertainty and that procedures would be carried out promptly, primarily driven by the ability to obtain senior note holder consensus and liquidate the assets.

The SPV approach establishes a conservative recovery rate based on an analysis of these two Drivers: Collateral Value at Default and Seniority & Security. The IFR Conversion Table is held in Appendix 14.

Collateral Value at Default

The first requirement of a high recovery is that there is significant value left in the vehicle at the point of default. This is assessed by reviewing Collateral Diversification, Collateral Liquidity and Structural Features.

Collateral Diversification

In determining the loss given default, the analysis already assumes poor asset quality. Diversification of the collateral is important in a distressed situation through two key impacts (1) selling a concentrated amount of the same type of collateral at a point of collateral distress, possibly a wider market distress for this collateral, lowers realized amounts, and (2) if correlated, then the SPV continues to race the risk that if one asset defaults at this point then all the collateral could default. Diversification is assessed using the Rating Driver score from the ICR section.

Diversification	
Excellent	No adjustment
Strong	No adjustment
Good	No adjustment
Fair	-5%pts
Marginal	-10%pts
Weak	-15%pts

Collateral Liquidity

Liquidity is not considered a Rating Driver in the ICR section for SPVs because these vehicles do not, as a rule, dispose or actively trade collateral prior to maturity. In the event of a distressed situation the remaining collateral will need to be liquidated and there are two key considerations (1) is there a market and (2) are reported or expected prices likely to be realizable or unlikely. Liquidity is assessed against the following guidelines.

Liquidity

Excellent – All assets are traded and instantly marketable on recognized major exchanges, and/or mature and automatically convert to a known cash value within a short space of time such as short dated deposits, CDs, Commercial Paper etcetera.	No adjustment
Strong – All assets are traded on recognized major exchanges or in active OTC markets (e.g. on-the-run Treasuries) and could be liquidated in short order at or around published prices and/or mature and automatically convert to a known cash value within a relatively short space of time.	No adjustment
Good – Assets are traded on recognized exchanges or in OTC markets which are likely to involve a reasonable level, although not necessarily huge depth, of liquidity, for example corporate bonds/loans of large, active issuers and off-the-run Treasuries	No adjustment
Fair – The majority of assets are broadly liquid but a non-trivial portion may be illiquid in the short term and carry subjective valuations, for example corporate bonds/loans issued by smaller, less active issuers and/or top tier tranches of SPVs	-5%pts
Marginal – Assets are illiquid in the short term: there is no active market as such although disposal could probably be achieved over the medium term except that timing is uncertain. Valuations are subjective and debatable. For example real estate, lower tranches of SPVs and/or private equities	-10%pts
Weak – Assets are illiquid and there is no market or other identifiable avenue for disposal except over the long term. Valuations are subjective and doubtful. For example equity tranches of SPVs and non-traded private loans.	-15%pts

Structural Features

Under this Driver the Analyst addresses two items:

- Are there measures or trigger events which terminate the program early based on deteriorating collateral?
- How valuable are those mechanisms for third party creditors?

In this context “high quality” refers to structural features that trigger an unwind of the entire structure at an early stage before the collateral value has materially deteriorated and/or left the vehicle i.e. minimized or removed potential structural subordination of third party creditors. Ratings based events of default are considered high quality, particularly when the rating trigger is set at a demanding level and applied to the vast majority of outstanding notes. Trigger events are often constructed as coverage ratios relating to the balance of collateral versus outstanding notes. The highest quality coverage ratio is one that is computed as the disposal value of collateral related to the par value of all outstanding notes and with a coverage ratio meaningfully greater than 100%. However ratios may be poorly constructed from the perspective of a third party creditor e.g. reference book value of collateral, sometimes with a haircut for the weakest rated assets and/or compared to outstanding senior notes only.

The quality of these measures is also constricted by any other features which may have already allowed value to have left the vehicle. Prior de-leveraging measures could mean that collateral has

already been liquidated and the proceeds paid out to note holders and perhaps resulting in the remaining collateral being the weaker and less liquid paper. For example, in Collateralized Debt Obligations, deteriorating collateral may first trigger coverage ratios which prompt paying down senior notes and which therefore reduces the reliance third party creditors may place in any coverage ratio included in the program wide Events of Default.

Structural Features	
Category 1 – No provisions for note repayment prior to maturity or expected refinancing date and/or ratings based event set at a relatively high level, or conservative coverage tests, referencing a material proportion of term funding.	No adjustment
Category 2 – Early note repayment allowed in line with pre-paying collateral and/or a program wide termination event exists that is well constructed and benefits third party creditors, but the mechanism does not take effect at the first sign of deteriorating collateral and it therefore allows some value to leave the structure prior to taking effect.	-5%pts
Category 3 – Early note repayment allowed in line with deteriorating collateral as triggered by coverage tests and/or a program wide termination event exists but from the perspective of third party creditors the ratio is not well constructed and other more timely mechanisms exist to extract value for other creditors. A typical CDO with OC triggers – both as an Event of Default and as a cash flow diversion mechanism – would qualify under Category 3.	-10%pts
Category 4 – No such events exist – the gross asset value could be entirely dissipated and all notes repaid or otherwise written off before a default event is deemed to have occurred	-100%pts

Seniority & Security

The second requirement of high recovery is that Lehman Brothers ranks towards the top of the Waterfall. The analysis also includes an adjustment for the possibility that Lehman's position in the waterfall may have been changed via an unadvised material amendment.

Waterfall

Generally fees and taxes rank highest in the waterfall. Some structures e.g. Physical Asset ABS may require maintenance reserves to be funded or other asset accounts satisfied before financial liabilities. Hedge Providers are generally either senior to or pari passu with senior note holders. However there are occasions where the event of default itself dictates where Lehman Brothers is located in the Waterfall. In these situations the Analyst should select the most conservative, realistic outcome.

Waterfall	
Senior (immaterial prior claims e.g. admin & taxes)	No adjustment
Senior (behind some modest claims in addition to admin & taxes)	-5%pts
Pari passu with senior notes	-10%pts
Subordinated to senior notes	-50%pts
Deeply subordinated (all notes)	-100%pts

Material Amendment

SPVs generally have the ability to change deal documentation during the life of a transaction and CRM is mostly concerned with an SPV's ability to reduce Lehman Brothers standing in the Waterfall.

- If the deal documentation requires the SPV to obtain Lehman's permission then the Analyst is put on notice to amend the Waterfall Driver at that time. Similarly, if the deal documentation provides Lehman with the ability to terminate the deal should a material amendment be implemented, then the Analyst will either amend the Waterfall Driver or terminate the relationship.
- If the deal documentation does not require the SPV to advise Lehman of a change in the Waterfall rankings then the Analyst may conservatively assume that such a change could occur, although such an occurrence is rare. In these circumstances CRM consider it reasonable to haircut the IFR by one notch i.e. by subtracting an additional 10%pts.

Appendix 8 – LSPV Scorecard Framework

Definition

Lehman SPVs (LSPVs) are designed to provide an individual investor (or small group of investors) with a note (or series of notes) that has a pre-defined pay-off explicitly referencing the performance of another asset or investment strategy, which may not include any credit risk features. Lehman usually executes one or more OTC derivatives contracts with the LSPV in order to provide the LSPV with the required note pay-off. The LSPV normally has no other trading relationships. The funds raised by the LSPV note issue are usually invested in one or more underlying assets and at maturity of the LSPV notes these underlying assets are liquidated, the OTC obligation(s) satisfied, and the note holders reimbursed the remainder. The underlying assets are often referred to as the “collateral” because OTC termination payments rank ahead of the note holders, and hence these assets effectively form the OTC Counterparty’s source of repayment. LSPVs include the in-house series such as RACERS but also include individual structures set up to accommodate specific clients which meet the above definition and operating structure.

Introduction

LSPV Credit Analysis involves a review of the LSPVs underlying asset(s) and Lehman’s transaction arrangements. Once a rating has been assigned to the underlying assets and the MPE is known, the Analyst is able to determine the LSPVs Internal Ratings. The ICR is computed as the combined probability that the underlying asset (UA) defaults and that the recovery rate on the UA is less than the transactional MPE. Transactional MPE refers to the maximum potential exposure experienced during the life of the trade regardless of when that potential exposure figure arises. The IFR is computed by comparing the transactional MPE with the expected recovery value. The underlying assets are not held as collateral under contract but rather the swap Counterparty has a senior claim over those assets in the event of default, and therefore the “collateral” is considered in the IFR calculation rather than in the Exposure at Default (i.e. potential exposure) calculation.

Internal Credit Rating

LSPV Credit Analysis involves consideration of the LSPVs underlying asset(s) and the OTC transaction arrangements. An LSPV may be expected to default to Lehman Brothers if:

- The LSPV has an obligation (owes value) to Lehman under the transaction. This obligation may vary over time depending on the transaction structure.
- The disposal value of the underlying asset(s) is insufficient to cover this obligation at the time the obligation must be met.

The LSPV’s probability of default is therefore derived from this joint probability.

However, CRM consider it more expedient and conservative to base an LSPVs ICR on these simplified inputs:

- Transactional MPE (consideration of peak MPE rather than the MPE profile)
- On the probability of the underlying asset(s) default
- The expected recovery value – and the likely distribution of the expected recovery value – should the underlying asset(s) default²

Internal Credit Ratings are therefore based on:

² It is generally conservative to use the expected recovery value as the lower bound for the underlying asset price, assuming interest rates movements are not extreme.

- If transactional MPE is < expected recovery value of the underlying asset(s) then the LSPV should never default and is rated iAAA.
- If transactional MPE is > expected recovery value of the underlying asset(s) then the LSPV may default if the underlying asset(s) default, and the LSPV therefore carries the rating of the underlying asset(s).
- If transactional MPE is similar (< = >) to the expected recovery value of the underlying asset(s) then the rating of the LSPV is set between iAAA and the rating of the underlying asset(s), based on an analysis of the likely distribution of the recovery value.

The MPE can be assessed by reference to pre-published risk factors or trade simulation by the Quantitative team. Analysts are also encouraged to refer to Market Risk Management for additional trade analysis and risk quantification, as appropriate.

The issuer(s) of the underlying asset(s) held by the LSPV may not be an existing Counterparty(ies) of Lehman and hence an ICR may not be available at the time of approving the LSPV trade. In these circumstances the lowest applicable External Credit Assessment Institution rating can be applied and converted to an ICR as per the table contained held in **Credit Policy Manual, 3.4.12 External Credit Assessment Institutions** (ECAI). If there is no ECAI rating available the Analyst should further investigate the underlying asset to determine an appropriate ICR³. In these situations the Analyst should describe their selection of ICR for the underlying asset(s) in the LSPV review, but a full review / scorecard for the underlying asset(s) is not required.

A simple model has been constructed to incorporate the distribution of recovery rates into the LSPV rating assessment. This model makes the following assumptions:

- Expected recovery rates are fixed by the level of seniority of the collateral only: senior unsecured and senior secured 55%, subordinated 25%⁴. Recovery rates are independent of the probability of default.
- Recovery rates map to a normal distribution. The standard deviations are: senior unsecured and senior secured 22%pts, subordinated 10%pts⁵.
- The MPE (i.e. the peak of the MPE profile) coincides with the default of the underlying asset

The model calculates the joint probability of :

1. The probability of collateral default using ten year cumulative probabilities of default⁶ and
2. The probability that the recovery rate on the underlying asset is less than the transactional MPE calculated as the cumulative probability that the recovery value, based on the normal distribution, is at or less than the transactional MPE value

The ICR model references this joint probability back to the 10 year probability of default table (**Credit Risk Management Credit Policy Manual** Appendix C) in order to identify the bond equivalent rating which CRM use to map back to the ICR table. Thus as the MPE approaches and then exceeds

³ For example, this may include consideration of obligor's financial condition, size and peer comparison etcetera.

⁴ The expected recovery rates are taken from the BIS Basle II Foundation Approach (p62) "International Convergence of Capital Measurements & Capital Standards" as the inverse of the published LGD rates. For reasons of expediency and conservatism CRM has chosen to ignore potentially higher recovery rates for secured bonds.

⁵ The standard deviation for senior unsecured is taken from Moody's publication "Default and Recovery Rates of Corporate Bond Issuers, 1920-2004" January 2005, Exhibit 9 "2004 Issuer-Weighted Recovery Rate Descriptive Statistics". In line with using the same Recovery Rate, we have chosen not to differentiate standard deviations between secured and unsecured underlying assets. The standard deviation for subordinated paper is not reported and has been assumed at 10%pts.

⁶ This is also conservative because shorter dated trades are penalized. The PD table is taken from the **Credit Risk Management Credit Policy Manual** Appendix C.

the expected recovery the LSPV's ICR reduces from iAAA to converge with the ICR of the underlying collateral.

The model does not cover the situation if $MPE > \text{par}$ or maturity value of the underlying asset; the model effectively assumes that if in these cases the LSPV will default because it does not consider the joint probability aspect. If the $MPE > 100\%$ of par or maturity value of the underlying asset(s) then:

- if $CCE < \text{par}$ = assign iCCC
- if $CCE > \text{par}$ = assign iD

Note that the LSPV should automatically be rated in line with the underlying asset(s) if:

- the underlying asset(s) is rated iCCC or iD
- the transaction exceeds 10 years original maturity

unless the $MPE > \text{par}$ or maturity value of the underlying asset (as above).

Credit Mitigants should be considered within the trade structure if:

- $MPE > \text{par}$ or maturity value of the underlying asset(s)
- the underlying asset is a non-standard bond
- Lehman does not benefit from seniority
- the underlying asset(s) cannot be rated with certainty, is correlated to the OTC, or is otherwise unacceptable to CRM

Internal Facility Rating

The ICR model assumes that the LSPV will default if the UA defaults and the subsequent recovery value of the UA falls below the transactional MPE. The combined probability of the actual monetary recovery rate being at or below the monetary value of the transactional MPE determines the ICR by referencing that combined probability back to the bond equivalent PD scale.

Internal Facility Ratings are calculated assuming a Counterparty default has already occurred; the fact that a default event has occurred implies, according to the ICR model, that the UA has also defaulted and that the recovery rate on the UA must already be less than or equal to the transactional MPE. However, in order to simplify and resolve this issue CRM uses the following rules:

- If the expected recovery value is at or above the transactional MPE value: CRM assumes that it is unlikely that the actual recovery rate will be below the transactional MPE. In these situations the Analyst assigns $IFR = i1$.
- If the expected recovery value is below the transactional MPE value: CRM assumes that it is likely that the actual recovery rate will be below the transactional MPE. In these situations CRM compute the recovery rate as a function of how far the expected recovery value is below the transactional MPE.

These rules are summarized in the following equation

$$RR \% = \text{Min}[100\%, (\text{expected UA recovery value} / \text{transactional MPE})\%]$$

The $RR\%$ is then converted to the IFR based on the standard IFR conversion table in Appendix 14.

The IFR model is based on two key features of LSPVs:

- Lehman Brothers transactional relationship ranks as the first material claim in the waterfall, ahead of the note holders although potentially behind fees & taxes
- Lehman Brothers manages the LSPV and hence controls the unwind process; the expectation is immediate unwind according to the terms of the LSPV constitutional documents.

If these features do not apply then the Analyst must manually determine the appropriate IFR.

Appendix 9 – Broker/Dealers

Definition

Broker/Dealers (B/D) are broadly defined as securities firms who are in the business of buying and selling securities for its own account or third parties. When acting as a broker, the firm acts as an intermediary between a buyer and seller, usually charging a commission. When acting as a dealer, the firm acts as a principal and stands ready to buy and sell for its own account. Securities bought for the firm's own account may be sold to clients or other firms, or become a part of the firm's holdings. In addition to conducting brokerage and dealer activities, many securities firms also provide M&A, asset management, or other specialized financial services.

Internal Credit Rating

Introduction

The B/D scorecard brings together the key considerations in evaluating the creditworthiness of B/Ds. There are both qualitative and quantitative aspects that need evaluation. On the qualitative side, consideration needs to occur on the operating environment of the B/D, the strength of the franchise, the diversity of revenues and assets, and the quality of management. Quantitative factors are also important in accessing the financial health of the B/D. Specific focus points are strength of capital, asset risk profile, liquidity management, and earnings.

ICR Rating Driver	Risk Weighting	Risk Weighting
Business & Management Evaluation	60%	
Operating Environment		20%
Franchise Size & Market Share		25%
Business Diversification		10%
Management & Corporate Governance		5%
Financial Evaluation	40%	
Capital		10%
Asset Risk Profile		10%
Earnings		10%
Liquidity		10%
Total	100%	100%

ICR Conversion Table

Rating Driver based ICR	Rating Drivers' Weighted Score	
	>	<=
iAAA	96	100
iAA	92	96
iA+	88	92
iA	84	88
iA-	80	84
iBBB+	76	80
iBBB	72	76
iBBB-	68	72

iBB+	63	68
iBB	58	63
iBB-	53	58
iB+	45	53
iB	37	45
iB-	29	37
iCCC	0	29

Business & Management Evaluation: Risk Weighting 60%

Each rating analysis begins with an assessment of the company's operating environment, which includes the strength and prospective performance of the economy, the structure and relative fragility of the financial system, confidence in the accounting framework, and the quality of supervision and regulation. A stable and predictable operating environment forms the underpinnings of sound credit assessment.

Ratings of B/Ds are reflective of their ability to adapt to challenges and opportunities "through-the-cycle". Where most other industries may face fairly predictable longer term cycles of changing demand and gradual inventory adjustment, securities firms often face cycles that include both sharp, shorter term declines in prices and decreasing business. The result of the cyclicity in the industry is that ratings for securities firms tend to be lower than those of the strongest commercial banks, despite the very strong competitive positions of the largest securities firms.

As the majority of B/Ds are regulated entities, a special evaluation also needs to occur on the quality, speed and depth of the regulators and other quasi-regulatory arms like stock exchanges within the respective country of domicile.

In addition, a B/D's market position determines a company's ability to withstand competitive pressures, including its share in key markets, product dominance and the ability to influence price. Finally, the assessment of management focuses on corporate strategy, risk management, and funding policies.

Operating Environment: Risk Weighting 20%

The first Rating Driver involves identifying and assessing the possible risks and opportunities in a B/D's operating environment. The often-changing legislative and regulatory framework should be considered, as well as who the primary regulators are and what precedents exist in the regulation of securities firms. In addition, accounting regimes can vary widely between systems and affect the quality of information available to management. While mark-to-market of a B/D's balance sheet imposes discipline on management, lower of cost or market used in certain businesses, like merchant banking, is more conservative. Lastly, securities firms need the fertile ground of a well-maintained economy and capital markets to prosper. B/Ds within the same country should generally have the same score as this factor should not reflect B/D specific issues. Rating Factors include

- Regulatory, Legal & Accounting Framework:
 - State, national, international regulatory, and legislative framework, including current and potential initiatives
 - Regulation that prevents development of liquid money or capital markets; application of reserve requirements and their impact; existence of offshore markets and their implication on regulatory or institutional rigidities
 - Regulatory examination policies and procedures

- Presence of capital requirements that operate to prevent dividends of capital to holding companies; consequences of failure to meet regulatory capital requirements
 - Functioning and effectiveness of self-regulatory organizations
 - Orientation of regulation—that is, whether it aims at avoiding firm failures or protecting customers
 - History of securities firm failures
 - Regulatory structure; level and quality of supervision, and the degree of regulatory independence types of reporting by B/Ds to the regulatory authorities; actions authorities are empowered to take to avoid problems and imminent B/D failures; the track record of regulators in handling individual or systemic B/D crises; recent attitude of regulators with regard to providing liquidity and solvency support to B/Ds and other types of financial institutions, and expected changes, if any
 - Process of deregulation, areas within the financial system that have already been deregulated, further steps expected, time frame for deregulatory process and expected impact on various market segments
 - Strength and efficiency of country's legal system
- Industry Structure:
 - Stability of the industry structure; number of players and relative size; barriers to entry and potential for new entrants; ability to exit without great cost; cost structures
 - Competition; prospect for alternative delivery mechanisms or substitute products (such as bank loans);
 - Importance of securities firms to the economy and the size of the customer base
 - Current methods of intermediating between capital raisers and capital suppliers
 - Whether securities firms offer bank-like products, like foreign exchange trading or commercial or consumer finance
 - Relative participation of retail or institutional investors
 - Ownership; involvement of governmental or quasi-governmental bodies; cross shareholdings and its potential consequences
 - Institutional or governmental constraints on money markets and capital markets
 - Depth of publicly traded capital markets and the trends in this area
- Economic Environment:
 - Size of the economy, the basis of the economy, and its vulnerabilities
 - Growth potential and capital-raising needs; openness of the economy; sensitivity to external economic factors, such as the terms of trade in single commodities; normal business cycle volatility as measured by GDP, unemployment, and bankruptcies
 - Openness of the economy, the extent to which its performance is correlated with that of neighboring countries and other trading partners, and the strength and cyclicity of trading partners' economies
 - Government intervention to maintain an overvalued or undervalued currency and the impact on capital markets by following such a policy
 - Structural problems facing the economy, the correction of which may require policies that depress economic activity (e.g., structural fiscal deficits, structural current account deficits, structurally high inflation, a lack of international competitiveness in important sectors of the economy)
 - Constraints on policymakers' ability to pursue appropriate countercyclical policies
 - The credit cycle (where securities firms are involved in lending for purposes other than financing securities)
 - Factors that affect the severity of cycles, including stop-and-go monetary policies and the regulatory regime
 - Historical cycles in debt and equity issuance and trading volumes
 - Political stability; level of commitment to allowing private markets to allocate resources

- Wealth accumulation processes, such as voluntary or mandatory pension plans, and investment constraints imposed on them
- Size and liquidity of capital markets; market structure (OTC or exchange-traded) stock market capitalization; transparency of markets; wide dissemination of information; ability to borrow securities to sell them short; settlement cycles and processes
- A country's reliance on foreign investment and the character of that investment
- Volatility in stocks, bonds, and other traded assets; level of markets / strength of asset values; are markets in expansive mode, contracting, bubble etcetera, danger of future price volatility

Operating Environment	
Excellent – A rating of Excellent indicates a very predictable and stable operating environment. There is minimal vulnerability to economic, demographic, social and regulatory changes. Primary operations of the B/D are based in a highly rated and developed country with political stability, depth of the capital markets, strong legal, accounting, regulatory and industry specific frameworks.	5
Strong – A rating of Strong indicates predictable and stable operating environment. Elements exist which have a remote chance of disrupting the current stable operating environment. These could include economic, demographic, social or regulatory changes. Primary operations of the B/D are based in a highly rated and developed country with political stability, depth of capital markets, strong legal, accounting, regulatory and industry specific frameworks.	4
Good – A rating of Good is indicative of a current stable operating environment that at times becomes less stable and predictable. There is vulnerability to demographic, social and regulatory changes. The B/D has primary operations based in a highly rated and developed country, but there exists possible elements of vulnerability in the political environment, economy, capital markets, legal, accounting, regulatory or other industry specific issues. Some exposure to emerging markets may exist.	3
Fair – A rating of Fair indicates that the operating environment has more characteristics of instability than stability. Demographic, social and regulatory changes may require restructuring of operations. The B/D may have operations based in an emerging markets country or a developed country, but there exists clear elements of vulnerability in the economy, political environment, capital markets, legal, accounting, regulatory or other industry specific issues. Exposure to emerging markets may exist, particularly to the higher rated, more stable emerging market countries.	2
Marginal – A rating of Marginal indicates that the operating environment is unpredictable and unstable. B/D operations are currently vulnerable to current issues in the economic cycle, political environment, capital markets, legal, accounting, regulatory or other industry specific issues. In addition, social or demographic changes will likely further impact the B/D's operations over the near term. The B/D may have considerable exposure to emerging markets.	1
Weak – A rating of Weak indicates that the operating environment is highly unpredictable and unstable. There are clear material issues present in the economic cycle, political environment, capital markets, legal, accounting, regulatory or other industry specific issues which make the B/D's credit profile highly vulnerable and requiring restructuring in the near term. The B/D may have significant exposure to the emerging markets.	0

Franchise Size & Market Share: Risk Weighting 25%

With Franchise Size and Market Share, the Analyst is assessing the Counterparty's relative size, business value, breadth and depth of operations, and its ability to withstand industry risks throughout the economic or industry cycle. This separates the firms with a sustainable business tied to growing capital markets or demographic opportunities from those that will only do well when volumes are cyclically strong. The sum of these parts should translate directly into better pricing power and higher margins compared to other firms. Even though the size of the chosen market should be a factor, both regional as well as international B/Ds can achieve maximum scores. For larger franchises that have achieved critical size, there likely exists significant franchise value due to their breath of operations, customer penetration, brand power, economies of scale, or significant market share in certain product offerings. Because securities industries are often characterized by different segments serving different types of customers with products whose growth potential, profitability, and cost functions vary markedly, comparisons need to be made between similarly situated firms. Rating Factors include:

- Absolute size of B/D in comparison to specific sector and overall market
- B/D's market shares in key sectors or product offerings and the size of those markets
- Available external rankings of firms' underwriting, trading, advisory, or research services
- Market shares of relevant secondary markets (e.g., stock exchange or government security primary dealer)
- Advantages derived from market position, such as informational economies of scale and market influence
- Broad product line and pricing power (which helps keep customer relationships and key salespeople)
- Vulnerability of the B/D's market position and competitive advantage
- Perceived strength of the B/D's brand
- Customer penetration and profile of the B/D (i.e. institutional or retail)
- Size, type, and breath of distribution channels
- Versatility to react to new threats and opportunities and ability to quickly update product line
- Any other idiosyncratic features

Franchise Size & Market Share	
Excellent – A rating of Excellent indicates that the B/D has a dominant presence within the industry, commands top market share and has the ability to affect product pricing. The B/D has achieved critical mass in key sectors and has a highly valuable and defensible business franchise.	5
Strong – A rating of Strong indicates that the B/D has a strong presence within the industry. It has a growing market share and ability to affect product pricing. The B/D is nearly approaching critical mass in key sectors and has a valuable and defensible business franchise.	4
Good – A rating of Good indicates that the B/D has an above peer average presence within certain sectors in the securities industry. Competitive pricing pressures do not allow the B/D to have much influence over pricing but is able to compete effectively. The B/D typically has a limited but still valuable business franchise.	3
Fair – A rating of Fair indicates that the B/D has a below average presence within certain sectors in the securities industry. The B/D has limited ability to affect product pricing due to competitive pricing pressures. The B/D typically has a very limited business franchise with marginal value.	2
Marginal – A rating of Marginal is indicative of franchises that have very limited market presence or value. This typically restricts the B/D's ability to compete effectively thus making them highly susceptible to competitive and market pressures. The B/D typically has a very limited or niche business whose	1

geographic presence, distribution channels, or business offerings are highly concentrated. While its current business model may be satisfactory, there are significant concerns about its medium- to long-term survival.	
Weak – A rating of Weak indicates the B/D has an insignificant presence in the market and its business model is highly vulnerable to competitive pressures. The B/D typically has a very limited business or track record, and its short- to medium-term survival is of concern.	0

Business Diversification: Risk Weighting 10%

Business Diversification relates to the level of diversity of a B/D's revenue streams and earning assets. The more diverse the revenue streams and earning assets, the higher likelihood that the B/D will achieve relatively stable earnings through an economic cycle. The Analyst needs to assess the degree to which smaller, less diversified firms are exposed to great risk of business cyclicality, or changes in competitive framework, regulation, taxation, or technology. While larger B/Ds are typically more diversified than smaller ones, a smaller B/D may achieve a high score if earning streams are well diversified and assets are not concentrated. In addition, a higher score may also be warranted for those B/Ds whose main revenue streams or assets are not highly susceptible to economic or interest rate cycles. When assessing diversity of assets, particular attention is placed on the risk characteristics of the assets and the quality of the securities portfolio. Heavy concentrations in proprietary positions, lending or revenue stream would warrant a lower score. Niche specialty B/Ds offering monoline products would likely receive a lower rating. Geographic concentration of the B/D's business lines (local, regional, international, etc) and assets is also an important consideration in assessing diversification. Ratings Factors include:

- Diversity of products offered and revenue business lines
- The concentration of revenue contributed by commissions, trading, net interest income, asset management, proprietary trading, or other
- Review of internally reported business line segment revenues and pretax profitability; correlations between segments
- Diversification between sets of customers, such as institutional, retail, discount, and high-net-worth individuals
- Geographical diversification of the B/D's business lines, revenue, and pretax profitability
- Vulnerability of main revenues streams from competitive or market forces
- Diversification of risk inherent in the B/D's assets, including relative proportion of high risk vs. low risk assets
- How well the B/D's diversification benefit is impacted during a market crisis (e.g. Mexican devaluation in late 1994)

Business Diversification	
Excellent – A rating of Excellent indicates that the B/D has well diversified revenue streams and earning assets which provide relative revenue stability against stresses experienced in particular products and/or geographic areas. The B/D's business presence is significant and most likely international in nature and benefits from a broad and stable customer base.	5
Strong – A rating of Strong indicates that the B/D has diversified revenue streams and earning assets which provide relative revenue stability through most economic or industry cycles. The B/D has good geographic or international presence.	4
Good – A rating of Good indicates that the B/D has some concentrations in revenue streams or assets which may add volatility to earnings through most economic or industry cycles. Risk assets are diversified but some concentrations	3

exist. The B/D has an acceptable geographic presence.	
Fair – A rating of Fair indicates that the B/D has concentrations in revenue streams or assets which will likely lead to revenue volatility through most economic or industry cycles. Risk Assets are typically concentrated. The B/D has limited geographic presence.	2
Marginal – A rating of Marginal indicates that the B/D has high concentrations in revenue streams or assets that will likely result to some revenue volatility through most economic or industry cycles. Risk Assets are typically centered around one or two asset classes with significant concentrations to a certain client base or geographic area.	1
Weak – A rating of Weak indicates that the B/D has overly concentrated revenue stream or asset base that will most likely have a material impact on revenue volatility through most economic or industry cycles. Risk Assets are concentrated by asset class, client base or geographic area.	0

Management & Corporate Governance: Risk Weighting 5%

Assessment of management focuses on corporate strategy, risk tolerance, financial track record, and ownership. Significant credit is given for delivering on and maintaining previously articulated strategies and related financial projections. Corporate governance has risen in importance due to recent events regarding management fraud. Close review of a company's board of directors and their ability to remain independent are key as well as the integrity of the audit process. Particular importance is placed on ownership structures that are majority-controlled and family-owned. While the Analyst is encouraged to review all aspects of the Counterparty's Management & Corporate Governance, the Analyst can choose to emphasize particular factors as being more pertinent than others when assessing the score for any individual Counterparty. Rating Factors include:

- Evaluation of corporate strategy and risk tolerance
 - Management responses to changes in the industry, including new entrants
 - Evaluate management strategy – is the B/D an innovator or imitator, poacher or trainer, acquirer or builder, etc
 - Aggressive management style dedicated to rapid growth that maximizes near-term earnings at the expense of future performance
 - Management level of knowledge and involvement in risk control; management support of the control functions in disputes with traders
 - Growth through acquisition and the type of financing
 - Size and degree of non-core operations
 - Acquisition and integration track record
 - Commitment to compliance systems to avoid potentially large legal claims; success in defending against litigation
 - Presence of governmental influence over decision-making
 - Management's pace of adopting new technologies and the degree of competitive advantage it may create
- Management tenure, turnaround, profile, experience and reputation
 - Management's track record in terms of ability to deliver on past projections or maintaining previously articulated strategies
 - Financial track record of B/D during current management tenure and through economic and industry cycles
 - Ability to attract and retain talent without paying greater commission or running a higher level of bonuses to pretax income; broker turnover

- Litigation and reputation track record
- Corporate governance issues, including
 - Independence and effectiveness of board of directors; combined chairman & CEO;
 - CEO style (e.g. autocracy; Nepotism; inter-connected boards)
 - Related-party transactions between the company and management/shareholders (including compensation and board overview)
 - Ownership structure (majority-controlled vs. privately or family-owned companies); does the owner (and its family) have a major role in management
 - Shareholder rights including loading voting rights, different share classes and other ownership prerogatives
 - Legal/regulatory structure and arrangements by which the public corporate entity exists; corporate structure; external market discipline
 - External communications: the transparency, timeliness and reliability of accounting and other public disclosures; information & emphases in the Annual Report
 - Choice of auditor and accounting policies in order to judge aggressiveness of accounting practices (including use of off-balance vehicles) and frequency of restated results & changes in accounting policies; emphasis on pro-forma statements and company preferred ratios
- Ownership profile
 - Employee ownership and deferred compensation plans
 - Degree of B/D ownership by corporate groups or individuals; are there advantages and disadvantages of or dangers stemming from these relationships?

Management & Corporate Governance	
Excellent – Management is highly experienced, reputable, well diversified and has a consistent strategy which they have been able to achieve. Projections and earnings guidance have been reliable. Acquisitions are properly motivated and conservatively funded. B/D has a prudent approach to growth. Most board members are independent and the company's audit process has integrity. Very limited amount of restructurings or accounting restatements. Ownership structure ensures appropriate oversight.	5
Strong – Management is reputable and well seasoned with many years of experience in achieving its goals with limited restructurings. Company is prudent in its acquisition appetite. Many of the directors are independent and financial reporting process is of good quality. Restructuring charges and financial restatements are limited with minimal impact on past earnings.	4
Good – Management has a good level of experience. Projections and earnings guidance have occasionally not been accurate. The company is usually prudent in its acquisitions. Financial structure has been modest but the company may engage in leveraging through stock repurchase or dividends. Company has experienced some attrition in senior management. A few board members are independent and may not be represented on the audit committee. Company may use off-balance sheet or complex vehicles to gain liquidity.	3
Fair – Management is relatively new or inexperienced. There has been an occasional restructuring due to change in business strategy or several financial restatements. Aggressive acquisition policy may have been used in the past whose strategic benefit is questionable. Credit Agreement amendments may have been required due to covenant defaults. Minimal representation of independent directors on the board. Financial track record is somewhat erratic due to management strategic decisions.	2
Marginal – Management has minimal business background or has experienced significant turnover. Lack of consistent business plan which has caused significant restructuring costs. Several substantive financial restatements which may have caused late delivery of its financial statements. Financial track record has been very erratic due to poor management strategic decisions.	1
Weak – Management has questionable practices and has been reportedly under investigation for business irregularities including fraud. Lack of proper financial reporting oversight and perhaps a qualified audit opinion. Financial track record has been highly erratic due to poor management strategic decisions.	0

Financial Evaluation: Risk Weighting 40%

The financial evaluation of the B/D Scorecard determines how a company employs its operating strategies and financial structure in relation to its competitive environment. It is useful to understand how a particular management team has, or has not, succeeded in navigating industry cycles, particularly compared with its peers' performance. Analysts review four strategic areas of the B/D's balance sheet and profit & loss statements that provide insight into the company's financial strength and flexibility. While absolute levels of ratios are important, it is equally important to focus on trends and compare these ratios with those of its peers within its own market and across geographic borders.

Capital: Risk Weighting 10%

Security firms have varying levels of capital needs depending on the risk inherent in their business activities. Capital forms the safety cushion to absorb losses emanating from all types of risk,

including market, credit, liquidity, operational, and litigation risks. Certain securities activities require high levels of leverage and regulatory capital while others employ little to no leverage. Analysts need to evaluate capital in the context of these needs, diversification of risk assets, and capital levels relative to competitors. Emphasis needs to be placed on the quality of capital. Capital with fixed maturities and charges (i.e. quasi-debt instruments like sub debt, perpetual or trust preferreds) are weaker forms of capital. Treating these quasi-debt instruments more conservatively in assessing core capital may be appropriate for B/Ds with significant levels of poor quality capital. In addition, whatever risk may be gleaned from the published financial statements, it may not be reflective of the true risk profile of the firm since balance sheets are a snapshot in time and subject to balance sheet “window dressing”. There could be significant position volatility and leverage in between reporting periods. Rating Factors include:

- Capitalization & Leverage
 - Management’s policies regarding risk appetite, leverage, and balance sheet usage for major activities
 - Presence in capital-intensive businesses, such as OTC dealing; need for future capital growth to meet continually expanding OTC trading opportunities and expanding derivatives positions
 - Comparison of capital with perceived level of risk in institution’s business; Composition, size, and trend of the balance sheet
 - Presence in businesses that have large litigation risks, such as retail brokerage or equity underwriting
 - Quality of capital: levels of common equity, preferred stock, convertibles, subordinated debt, perpetual debt, minority interests, goodwill and other intangibles, revalued assets, unrealized capital gains, loan loss reserves in excess of probable losses, and other types of quasi-equity. If a holding company structure is involved, level of double leverage (effectively holding company debt whose proceeds are invested as equity in subsidiaries)
 - Dividend payout ratio, internal growth rate of capital, share repurchase schemes
 - Capital that is not available to the parent company, such as that invested in derivative product companies or held at exchanges
 - Absolute size of B/D’s capital base and reserves and its ability to absorb extraordinary, unexpected losses that could arise, given the B/D’s business mix
 - Excess of regulatory capital over minimum requirements
 - Capital needs of off-balance sheet transactions, like TBAs (to be arranged) and securitized assets

- Financial Flexibility & Capital Access
 - Ability to raise various forms of capital from public or private sources particularly in difficult environments
 - Internal reserves that could be used to cover unexpected losses; e.g. franchise value of discreet businesses, assets where the market value is significantly greater than the book value, ability to sell, likely value in stressed situations

Capitalization	
<p>Excellent – A rating of Excellent indicates that the amount and the quality of the B/D’s capital are excellent. The B/D maintains more than adequate capital to support the risk characteristics of business lines. The capitalization provides a large cushion to absorb unanticipated losses arising from business activities under normal market conditions. Generally, the B/D’s capital ratios compare favorably with those of peer group averages. The regulatory capital requirements and ratios are significantly higher than the minimum required by the regulator.</p>	5

Strong – A rating of Strong indicates that the B/D maintains a strong capital base to support the risk characteristics of the business lines. The capitalization of the B/D provides a good cushion to absorb unanticipated losses arising from business activities under normal market conditions. Generally, the B/D’s capital ratios compare favorably with the peer group averages. The B/D’s regulatory capital requirements and ratios are well above the minimum required by the regulator.	4
Good – A rating of Good indicates that the B/D maintains an adequate capital base to support the risk characteristics of the business lines. The capitalization of the B/D provides for a cushion to absorb unanticipated losses arising from business activities under normal market conditions. Generally, the B/D’s capital ratios are in-line with peer group averages. The B/D’s capital requirements and ratios are above the minimum required by the regulator.	3
Fair – A rating of Fair indicates that the B/D maintains lower quality and levels of capital relative to the risk characteristics of the business lines. There is a chance that this low capitalization level may not provide adequate cushion to absorb unanticipated losses arising from business activities under normal market conditions. The capital position could quickly become marginal (rating 1) in the event of negative factors, such as in a bear market, asset deterioration or poor economic conditions. Generally, the B/D’s capital levels and ratios are below peer group averages. The B/D’s regulatory capital levels and ratios barely meet the minimum required by the regulator.	2
Marginal – A rating of Marginal indicates that the capital level is significantly below the amount needed to ensure support for the risk characteristics of the business lines. If capital levels are not rectified, there is a high probability of technical insolvency in the event of losses emanating from current business activities. Generally, the B/D’s level of capital and ratios are well below peer group averages. In addition, the B/D’s regulatory capital levels barely meet the minimum required levels by the regulator.	1
Weak – A rating of Weak indicates that the level and quality of capital of the B/D is critically deficient. The level of the B/D’s capital position threatens the survivability of the institution. Both the quality and absolute levels of regulatory capital is well below the minimum required by the regulator and regulatory corrective action may be imminent. The B/D may be technically insolvent from a GAAP perspective.	0

Asset Risk Profile: Risk Weighting 10%

Asset Risk Profile is an assessment of the risks associated with the B/D’s business and trading assets, both on- and off-balance sheet. Such a review is often difficult due to the lack of disclosure on the risk taken in the trading or lending assets. Therefore there is a fair amount of judgment in evaluating this category for security firms. Traditionally, securities firms extended credit only when it was secured by marketable securities. Now with the advent of derivatives and other trading instruments, such secured lending has given way to increased levels of unsecured credit risk in many trading products. On the lending side, many large securities firms also offer unsecured lending facilities to their clients in order to remain competitive. This has resulted in additional credit exposures by some securities firms involved in this syndicated lending activity, much akin to C&I lending by commercial banks. In the case of derivatives, the potential credit risk may be many times the size of the current credit risk. It is therefore important for the Analyst to focus on the B/D’s risk management framework, practices, and track record. Below are some additional Rating Factors that can be used when assessing the B/D’s Asset Risk Profile:

- Structure of balance sheet, including relative proportion in different low-credit risk assets (e.g., government bills or client receivables) compared with higher-risk assets (e.g., loans or equities)
- The importance of trading to a given firm and the instruments traded (with special emphasis on less-liquid instruments); importance of proprietary trading
- Assessment of trading Value-at-Risk, levels of Counterparty credit exposure, number of trading day losses per year, and other risk metrics; how does the risk compare to peers
- Review of earning assets; Fixed-income & equity security holdings and Credit portfolio
- Large problem-credit exposures, levels in and changes of nonperforming assets, past-due loans, restructured loans and other problem-asset categories; and expected future trends
- Concentrations of industry exposure
- Problem credits and loss history; Trends in loan loss reserves, charge offs and recoveries
- Daily volatility of trading results; large one-day losses
- History of control lapses and fraud
- Aging of securities inventory and turnover; backup facilities for trading, processing and settling transactions
- Underwriting commitment process; limits on size of sole-managed underwritings

Asset Risk Profile	
Excellent – A rating of Excellent indicates that the B/D has very low risk profile either due to low risk assets or through a solid track record in managing the firm’s credit and market risks. Balance sheet assets are largely low risk security holdings, customer receivables, and little to no credit portfolio. Problem assets are minimal. Credit and Market risk management across the organization is among the best in the industry. The firm has a relatively clean track record in managing risks and avoiding significant credit losses or trading losses throughout credit and industry cycles.	5
Strong – A rating of Strong indicates that the B/D has low risk profile either due to low risk assets or through a good track record in managing the firm’s credit and market risks. Balance sheet assets are largely low risk security holdings, customer receivables, and little to no credit portfolio. Proprietary positions are minimal and the firm has little to no problem assets. Credit and Market risk management across the organization is above average within the industry. The firm has an above peer track record in managing risks and avoiding significant credit or trading losses throughout credit and industry cycles.	4
Good – A rating of Good indicates that the B/D has an average risk profile either due to its risk assets or through its track record in managing the firm’s credit and market risks. Balance sheet assets are largely average risk security holdings and customer receivables. There may be material proprietary positions or a lending book which carry significant levels of risk. Credit and Market risk management across the organization is considered in line with peers. The firm has an average track record in managing risks and avoiding significant credit or trading losses throughout credit and industry cycles.	3
Fair – A rating of Fair indicates that the B/D has a higher risk profile due either because of higher risk assets or weak track record in managing the firm’s credit and market risks. There may be material proprietary positions or a lending book which has resulted in diminished earnings or losses in the past. Credit and Market risk management across the organization is considered sub par within the industry. The firm has a below average track record compared to peers in managing risks and avoiding significant credit or trading losses throughout credit and industry cycles.	2
Marginal – A rating of Marginal indicates that the B/D has a high risk profile due either because of high risk assets or poor track record in managing the	1

<p>firm's credit and market risks. There are material proprietary positions or a lending book which has resulted in weak earnings or material losses in the recent past. Credit and Market risk management across the organization is considered poor at best. The firm has a poor track record compared to peers in managing risks and avoiding significant credit or trading losses throughout credit and industry cycles.</p>	
<p>Weak – A rating of Weak indicates that the B/D has a very high risk profile due either because of its high risk asset holdings or a very poor track record in managing the firm's credit and market risks. There are material proprietary positions or a lending book which has resulted in large losses in the recent past. There is no credible Credit and Market risk management across the organization. The firm has a very poor track record compared to peers in managing risks and avoiding significant credit or trading losses throughout credit and industry cycles.</p>	0

Earnings: Risk Weighting 10%

The B/D's profitability and its ability to generate recurring core earnings through the economic or industry cycle are essential for health and well being of the franchise. This also helps grow the business and build reserves and capital base. Sustainable earning sources with limited volatility and diverse revenue streams are important attributes. This is particularly important for B/Ds with meaningful fee based businesses which tend to vary widely across industry segments and geographic markets. It is also important to evaluate the cost structure of the B/D as this tends to vary depending on the services provided and the types and number of customers served. For example, discount firms will not have the same overhead as full service firms since sales and research staff will be leaner. Since there is a great deal of variation in the business models of B/Ds (e.g. products offered and client base), it is important to compare firms that are in similar business lines. Operating losses can slowly erode the B/D's capital base/reserves and subject the B/D to regulatory actions and/or insolvency. Other Rating Factors to consider include:

- Annual volatility of revenues, pretax profit margins, and pretax returns on equity
- Quarterly performance compared with firms with a similar business during a cyclical downturn
- Sources of volatility in performance (trading volatility or broad-based cyclicality); sensitivity of pretax income to changes in revenue (operating leverage)
- The proportion of net revenue and pretax profit derived from less-cyclical activities, such as asset management, custody, and other fee-based revenue sources
- Level of less-cyclical fee income in relation to fixed or total costs;
- Net interest income: margin trends and ability to maintain volume
- Non interest income: diversity and sustainability of other income sources and growth potential
- Operating expenses: level and trend of overhead relative to the company's business mix and distribution network, degree of automation in comparison to peers', ability of earnings to meet current and future needs
- The variability of compensation and headcount during cyclical downturns
- Levels and cyclical trends in compensation as a ratio of net revenue and as a ratio of pre-compensation pretax income
- Stability or cyclicality of expense control "culture" and the ability of management to maintain some discipline even in euphoric market environments
- Net operating income analysis (level and trend)
- Makeup of non-interest expenses (for example, proportions of compensation and non-compensation); non-compensation expense as a ratio of net revenue

- Quality of earnings: proportion of income recognized as core earnings, proportion of earnings from trading activities, ability to price risk into various products, actual return on the perceived risk in the book, transparency and conduct of accounting practice
- Proportions and trends in fixed costs; Internally or externally sourced overhead functions, such as clearing services or research
- Impact of extraordinary gains and/or charges; Impact of accounting methods
- Impact of inflation on earnings, return on equity versus the reporting period's inflation rate
- Earnings outlook, year-to-date budget versus actual, projections for following year and medium-term plan

Earnings	
Excellent – A rating of Excellent indicates that the B/D's earnings over economic or industry cycles are superior to peer both from a stability and diversification standpoint. The B/D has a well diversified client base and revenue sources and exhibits consistent earnings growth with relatively low volatility. Excellent track record in controlling expenses, even in euphoric market environments. Quarterly performance is superior compared with firms with a similar business during a cyclical downturn.	5
Strong – A rating of Strong indicates that the B/D's earnings over economic or industry cycles are generally above peer both from a stability and diversification standpoint. The B/D has a diversified client base and revenue sources and exhibits better than peer average earnings growth with relatively low volatility. Good track record in controlling expenses, even in euphoric market environments. Quarterly performance is above peer average when compared with firms with a similar business during a cyclical downturn.	4
Good – A rating of Good indicates that the B/D's earnings over economic or industry cycles are comparable to peer averages both from a stability and diversification standpoint. The B/D's client base and revenue sources tend to follow industry trends and volatility through the cycle. Discipline in controlling expenses is in line with peers, even in euphoric market environments. Quarterly performance is comparable to averages of firms with a similar business during a cyclical or industry downturn.	3
Fair – A rating of Fair indicates that the B/D's earnings over economic or industry cycles are below peer averages both from a stability and diversification standpoint. The B/D's client base and revenue sources tend to be more concentrated than peer, which often results in higher levels of earnings volatility through the cycle. Discipline in controlling expenses is sometimes erratic, particularly in euphoric market environments. Quarterly performance is below average when compared to firms with a similar business during a cyclical or industry downturn.	2
Marginal – A rating of Marginal indicates that the B/D's earnings over economic or industry cycles are well below peer averages both from a stability and diversification standpoint. The B/D's client base and revenue sources tend to be highly concentrated which has resulted in significantly higher levels of earnings volatility through the cycle. There does not seem to be much discipline around expense controls, particularly in euphoric market environments. Quarterly performance is poor and erratic when compared to firms with a similar business during a cyclical or industry downturn. The firm may be struggling to break-even, and incurs periodic losses.	1
Weak – A rating of Weak indicates that the B/D's earnings over economic or industry cycles are very poor both from a stability and diversification standpoint. The B/D's client base and revenue sources are highly concentrated which has resulted in material levels of earnings volatility through the cycle.	0

There is no apparent discipline around expense controls. Quarterly performance is very volatile and often results in significant revenue declines or losses during a cyclical or industry downturn. The firm is consistently incurring losses through the cycle and future viability of the firm is questionable.

Liquidity: Risk Weighting 10%

An assessment of liquidity can vary widely for B/Ds depending in part on the types of activities in which they engage, as well as their creditworthiness and access to money and capital markets. B/Ds without such access tend to rely on secured funding or bank loans. When assessing liquidity, the Analyst needs to focus on the generally liquid nature of the balance sheet, asset/liability management practices, and maintenance of contingency plans to deal with “runs” on short term unsecured funding. The following are some additional Rating Factors that can be considered when evaluating liquidity:

- Management’s philosophy regarding asset and liability management and balance sheet structure
- Expected reaction of liquidity providers during times of stress
- The attributes of funding; overall composition of funding sources; maturity structure of both short- and long-term funding; diversity of short-term funding sources; concentrations of funding from individual entities
- Extent of funding from insured or uninsured customer sources; existence, maturity and legal underpinning of markets for secured sources of funding, such as repurchase agreements or buy/sell agreements
- Analysis of certain liquidity metrics relative to peer with a focus on balance sheet liquidity (e.g. level of net capital available to satisfy customer receivables) and secured funding potential (e.g. unencumbered securities)
- Relationships with banks or other sources of funds; access to central bank or governmental sources of emergency liquidity
- Ownership profile and extent to which parent may serve as a liquidity provider in times of stress
- Character of the assets funded; ability to quickly liquidate short-funded assets; ability to borrow against short-funded assets as collateral
- Levels of interest rate, foreign exchange, and equity risks in the balance sheet
- Maintenance of a comfortable cushion of asset liquidity in excess of the potential short-term repayment needs
- Role of Treasury Department and objectives and risk appetite; assessing financial policies and contingency liquidity planning
- Reasons for structural risk: legal restrictions, regulatory requirements, limitations of local funding or hedging markets, or position-taking
- Use of non-cash market instruments, such as futures, forwards, and swaps
- Past and future position-taking and balance sheet flexibility
- Quality and reach of the distribution channels;

Liquidity	
Excellent – A rating of Excellent indicates the B/D maintains ample liquidity levels and well developed asset/liability management practices. The B/D has diverse sources of liquidity and has a superior and proven access to capital markets even during times of stress. The B/D has reliable access and sufficient sources of funds on favorable terms to meet present and anticipated liquidity needs.	5
Strong – A rating of Strong indicates the B/D maintains sound liquidity levels and asset/liability management practices. The B/D has sufficient sources of liquidity and has access to capital markets even during times of stress. The B/D has access and sufficient sources of funds on favorable terms to meet present	4

and anticipated liquidity needs.	
Good – A rating of Good indicates the B/D maintains satisfactory liquidity levels and asset/liability management practices. The B/D has ability to quickly liquidate or borrow against short-funded assets and has access to capital markets. There may exist concentrations of long term funding from individual entities. During the lows in economic or industry cycles, the B/D will likely not face any difficulties in meeting its liquidity needs.	3
Fair – A rating of Fair indicates the B/D maintains below peer average liquidity levels and asset/liability management practices. The B/D has a limited ability to liquidate or borrow against short-funded assets and has limited access to capital markets. There are concentrations of long term funding from individual entities. During the lows in economic or industry cycles, the B/D will likely struggle to meet its liquidity needs and will likely incur above market costs in tapping these available liquidity sources.	2
Marginal – A rating of Marginal indicates the B/D maintains tight liquidity levels and has questionable asset/liability management practices. The B/D is very restricted in its ability to liquidate or borrow against short-funded assets. Access to capital markets is questionable. There are large concentrations of short and/or long term funding sources. During the lows in economic or industry cycles, the B/D will likely have difficulties meeting its liquidity needs under reasonable terms in the capital markets. Asset sales might be required to reduce debt burden or cover obligations. The low liquidity of the B/D may threaten its medium-term viability.	1
Weak – A rating of Weak indicates the B/D maintains critically deficient liquidity levels and poor asset/liability management practices. The B/D has restricted ability to liquidate or borrow against short-funded assets and has no access to capital markets. There are large concentrations of short and/or long term funding sources which may dry up during times of stress. Asset sales will likely be required to cover short-term debt or customer obligations. The low liquidity position of the B/D threatens its short-term viability.	0

Internal Facility Rating

Introduction

The IFR for a Counterparty using the Broker/Dealer Scorecard is assigned using the Ratings Driver Based Approach, Financial Institutions Form. This approach consists of increasing or decreasing the Base Reference Recovery Rate (BRRR, stated as a percentage value) by the cumulative percentage points (%pts) impact of the following IFR Ratings Drivers – the Jurisdiction Adjustment, an adjustment for residual asset values (Asset Evaluation), an adjustment for the likely Regulatory Response (if any), an adjustment for the relevant Seniority and Cushion, and the Complexity Adjustment – to determine the Proposed IFR by reference to the standard IFR Conversion Table.

The Base Reference Recovery Rate, the Jurisdiction Adjustment, the Complexity Adjustment, the Cushion and the IFR Conversion Table are further discussed in Appendix 14. This current Appendix covers the adjustments for asset values (Asset Evaluation), Regulatory Response and Seniority.

Asset Evaluation

Industry Distress

Industry membership in itself is not considered to be a primary driver of recovery rates. However, ceteris paribus, if an Industry is considered to be in distress then CRM believe this is likely to result in lower Industry wide recovery rates than otherwise expected (compared to the BRRR). Industry distress for B/Ds is initially proxied by reference to the “Operating Environment” score in the ICR Ratings Driver section: the greater the exogenous threats facing all such Broking Counterparties, the less value those Counterparties’ component assets would likely retain during a work out process.

Industry Distress	
ICR Operating Environment	Adjustment to BRRR
Excellent, Strong, Good, Fair	No Adjustment
Marginal	-5%pts
Weak	-10%pts

However, in order to reflect local or regional differences in the host country, or any other feature of the external environment that is not adequately reflected under the ICR section, the Analyst is entitled to reduce, but not increase, the score obtained from the ICR section based on Expert Judgment. For conservatism, CRM do not credit the BRRR for B/Ds with relatively lower exogenous threats.

Residual Asset Value

The bulk of assets held at Broker Dealers are a portfolio of financial assets split between banking book and trading book. Portfolio Theory indicates that the more diversified the assets and the higher the quality of the individual assets, the greater the expected value of those assets in future time periods i.e. the higher the residual value. Because the probability of default of a Broker Dealer is also driven, at least in part, by the ongoing performance of its financial assets, there is also a partial correlation between the probability of default and the recoveries in the event of default. Residual Asset Value is therefore proxied by reference to the Asset Risk Profile score in the ICR Ratings Driver section. CRM believe that this driver is extremely important in systematically estimating the recoveries pertaining to Broker Dealer Counterparties, and Analysts attribute a substantial increase in the recovery rate based on their view over the Asset Risk Profile.

Residual Asset Value	
ICR Asset Risk Profile	Adjustment to BRRR
Excellent	+25%pts
Strong	+15%pts
Good	+5%pts
Fair	No Adjustment
Marginal	-3%pts
Weak	-5%pts

Regulatory Response

CRM believes that certain Broker Dealers will benefit from a regulatory desire to minimize the impact of distress on the local financial system and economy. Regulatory action can take place during the deterioration in a Broker Dealers credit standing and/or after a distress event has occurred. Because of the nature of a Broker Dealer’s liabilities (not generally funded by depositors or policy holders) and relatively limited role in the operation of the payments system, CRM believe that the Regulatory Response to Broker Dealer distress situations tends to arise after the distress event rather than during the credit deterioration. CRM believes that Analyst can discriminate, ex ante, which Broker/Dealers are likely to continue to materially benefit from regulatory action post-distress event, and that such

regulatory action will have an incremental impact on the recovery rate for those certain Broker/Dealers.

A Broker Dealer with a dominant regional, national and/or international footprint where failure would cause major, perhaps critical disruption to the capital markets and functioning of the national and/or international economy qualifies, for a Regulatory Response status of “Top Tier” and an adjustment factor of +10%pts. Generally this status will only be assigned to B/Ds scoring very highly on the Franchise Rating Driver in the ICR section. Non-qualifying B/Ds are not adjusted.

Seniority

Seniority speaks to the level of an individual Facility in the priority of payments ordering in the event of a breakup, assuming that the absolute priority rule holds. If the Analyst has any reason to believe that the absolute priority rule will not hold, then the Facility should be assigned to a lower, more appropriate, Seniority level. Generally facilities with Broker Dealer Counterparties are at the Senior Unsecured level. Despite the reduced number of senior claimants compared to Insurance (policy holders) and Banking (depositors) Counterparties, CRM do not believe it prudent to assume a proportionately higher recovery from Broker Dealers based on the observation that B/D balance sheets can change significantly between reporting periods and may include significant volumes of secured funding (e.g. repos) at any point in time. Therefore the adjustment for senior unsecured remains +0%. Subordinated facilities are rare and may include, for example, swaps against subordinated funding. It is extremely rare to benefit from non-eligible collateral when dealing with Broker/Dealers and therefore no “Senior Secured” status is available for selection; if any Lehman Brothers Facilities have such a status then the Analyst should use the Override functionality to record the appropriate IFR.

Seniority	
	Adjustment to BRRR
Senior Unsecured	No Adjustment
Subordinated	-20%pts

Cushion

The Seniority & Security score is then adjusted for the extent based on the Facility’s relative position in the Counterparty’s Liability structure. For example, Senior Unsecured has different implications for a Facility’s recovery rate depending on whether the Counterparty has significant equity and subordinated debt and no senior secured debt, compared to a Counterparty which is highly leveraged based on giving security interests in its assets to a relatively large body of Senior Secured lenders. Cushion makes an adjustment for extremes and is defined (using monetary values as inputs) as:

$(\text{Creditors subordinated to Lehman's Class} + \text{Shareholder Equity}) / \text{Total Assets}$

Cushion	
	Adjustment to BRRR
> 75%	+10%pts
> 50% to 75%	+5%pts
15% to 50%	No Adjustment
< 15%	-5%pts

Appendix 10 – Municipalities

Definition

A Municipal entity is defined for the purposes of this scorecard as a sub sovereign level government administrative entity generally composed of a clearly defined territory or other administrative agency. This can include a town, city or other district as well as a School District or other administrative district.

Introduction

The Municipal scorecard framework is to be used to assign ratings to Municipal counterparties, domiciled in OECD countries where the sources of repayment of a financial obligation are formally backed by the full faith and credit of the municipality. Such obligations are typically backed by the local government general obligation pledge or unlimited tax general obligation. For the analysis of all other Municipal/ Tax exempt Counterparties, the Not-For-Profit scorecard may be more appropriate.

An analysis of a municipality begins with an analysis of macro economic factors. This analysis is overlaid with an analysis of the financial condition of the Municipality in terms of revenues, expenditures and management of the general fund or equity as well as indebtedness of the Municipality. Finally the Analyst looks to the quality of management both in terms of ability and political construct.

ICR Rating Driver	Risk Weighting
Economy	30%
Financial Performance	20%
Liquidity	10%
Term Liabilities	20%
Fiscal Discipline & Governance	20%
Total	100%

ICR Conversion Table

Rating Driver based ICR	Rating Drivers' Weighted Score	
	>	<=
iAAA	90	100
iAA	80	90
iA+	75	80
iA	70	75
iA-	65	70
iBBB+	60	65
iBBB	53	60
iBBB-	46	53
iBB+	43	46
iBB	39	43
iBB-	34	39
iB+	28	34
iB	20	28

iB-	15	20
iCCC	0	15

Economy: Risk Weighting: 30%

The Analyst firstly assesses the Municipality's economic setting. The economic base is one of the most critical factors in determining an issuer's rating, and is impacted by local and national economic factors and trends. The foundation of the credit strength of a Municipality is in its economy. Financial growth prospects and volatility of the major revenue source i.e. tax receipts, depend heavily on the performance of the local economy, as does the affordability and range of services delivered by a government. A Municipality's proximity to regional transportation networks, cities and markets play a key role in economic development. The local infrastructure including the local road network, utility systems and mass transportation facilities, are also important. Infrastructure provides information not only about how a specific economy has developed to date, but also information on future growth prospects. Rating Factors include:

- Demographic trends: age, education, population density, labor skills, competitiveness and wealth and income level of the population base.
- Regional economic growth (output) trends, stability sources, industry mix.
- Tax base: size, structure, diversity, assessed and market valuations, building permits, breakdown between commercial, residential and industrial sources, concentrations in taxpayer or employment sectors, significant changes in tax base
- Employment base: industry mix (especially concentration in one sector that provides most of the revenue and employment) and employment mix by sector both absolute and relative to national and State trends, concentrations in employers or industries, employer commitment to a community, unemployment patterns, regional patterns of employment and growth, level of retail sales particularly in communities which rely on sales tax revenues.
- Resource endowment both natural and man made.
- Benefit from central government project specific directed aid (regeneration etc).

Economy	
Excellent – Economy exhibits consistent diversity of tax base and employer base and compares favorably on a regional and national basis. Economic growth is strong and the population displays high wealth and income characteristics both relative and absolute and little volatility in tax receipts. Employment base is characterized by strong diversity of industry and low unemployment compared to both regional and national trends.	5
Strong – The tax and employer base of the economy is diversified but economic growth is somewhat slow contributing to some volatility in tax receipts. Residents' income levels are above the regional and national average, and unemployment levels are relatively low.	4
Good – The economy is driven by several industrial sectors providing the majority of revenues and jobs. Structural rigidities may constrain growth and keep unemployment around the national average. The population has income levels below the national average.	3
Fair – Economy exhibits somewhat concentrated tax and employer base, and is dominated by a few industries. Significant industry concentration makes the economy highly vulnerable to cyclical downturns within these industries and the national economy as a whole. Growth and employment can be very volatile, which contributes to significant volatility in tax receipts. Residents' income levels are low.	2

Marginal – The economy lacks any tax and employer diversification and may be dominated by one industry. Outside of the industrial sector, growth levels and employment are erratic and income levels are among the lowest nationwide. Resident businesses and individuals rely on significant subsidies.	1
Weak – Economy is characterized by weak wealth and income levels. The tax base has significant concentrations of tax revenue sources especially in terms of property taxes. The economy lacks any local “engines of growth” and the employment base is characterized by high unemployment or low employer commitment to the local economy.	0

Financial Performance: Risk Weighting: 20%

This Rating Driver includes an analysis of revenues and expenditures, annual operating and budgetary performance, as well as budgeting and financial planning. Important Rating Factors include consistency of operating results over time, the matching of recurring expenditures with recurring revenues, the generation of operating surpluses, the minimal use of nonrecurring revenues to fund ongoing expenditures, expenditure growth rates, and a community’s ability to control spending. Particular emphasis should be placed on the level of annual spending needed for fixed expenses such as debt service and pension funding. The revenue mix and the volatility of such revenues, as well as limitations on the ability of the Municipality to raise taxes, are important and are typically determined by the economic environment and growth prospects. The analysis also considers legal rights as well as the political will of a Municipality to raise taxes. Other factors include centralization of control as well as the level of tax versus the width of the tax base.

Transfers from federal, state or other government programs (often called “intergovernmental transfers”) could be an important source of revenue enhancing the revenue base but at the same time could represent a service responsibility that constrains budget flexibility and performance. Higher levels of government often provide such assistance by condition expenditure or establishing service standards that could affect future fiscal performance. These transfers can be reviewed in terms of their size, predictability (if it is a recurring set term program) and purpose (special purpose, general payments, etcetera). Other Rating Factors include:

- Volatility and predictability of revenues. Property tax revenues tend to be most predictable but diversity of revenues can reduce burden on property tax base and often sales and excise taxes access broader and deeper wealth. Comparisons with other states/ jurisdictions can be useful.
- Distributions to local governments by states, allocated as part of the state budget process or state shared revenue. Dependence on state revenue may be a cause for concern given a municipality’s inability to control future allocations. In the US, school districts traditionally benefit from increases in state aid because of constitutional requirements to provide for adequate and equal access to education.
- Importance of conservative forecasting and budgeting and the ability to take remedial action where necessary.
- Identifying where tax raising ability is limited, the level of remaining margin and how the entity has historically operated within the limit. Ability and willingness to increase taxes or establish new ones. An analysis of discretionary expenditures should be made with reference to those that could be reduced without noticeably reducing services. The existence of an “anti-tax” environment makes increasing tax rates politically difficult.
- Expenditure growth rates; discretionary v non discretionary; variable v fixed; cyclicity.
- Growth in labor costs, especially those arising as a result of multi year settlements.
- Major spending items such as waste water and solid waste facilities or public hospitals.

Financial Performance

Excellent – Stable and diverse revenue base. Stable expenses and/or expense increases relate to revenues trends. Operations are routinely within budgeted levels and year-end results demonstrate operating surplus and cash flow. Low tax burden or in line with similar jurisdictions. Legal-tax raising capacity available if needed.	5
Strong – Stable and diverse revenue base. Expenses reflect stability and relate to revenues. Operations are close to budgeted levels and most year-end results demonstrate operating surplus and strong cash flow. Low tax burden or in line with similar jurisdictions. Some availability of legal-tax raising capacity if needed.	4
Good – Stable, but marginally diverse revenue base. Expenses relatively stable and in most cases increases relate to revenue growth. Operations often show variance from budgeted levels, but often year-end results demonstrate operating surplus. Sound cash flow. Tax burden in line with similar jurisdictions. Legal-tax raising capacity available, but limited.	3
Fair – Somewhat volatile and marginally diverse revenue base. Expenses are volatile and relatively high portion relate to discretionary spending. Operations often show variance from budgeted levels and often year-end results demonstrate operating deficit. Tax burden higher than similar jurisdictions. Limited legal-tax raising capacity.	2
Marginal – Volatile and marginally diverse revenue base. Expenses are volatile and high portion relate to discretionary spending. Inconsistent cash flow. Frequently operates below budget or with operational deficits. High tax burden and/or lack of legal base to raise taxes.	1
Weak – Weak or inconsistent cash flow and earnings. Constantly operates below budget with significant occurrence of recent operational deficits. High tax burden and/or lack of legal or political ability to raise taxes.	0

Liquidity: Risk Weighting: 10%

An analysis of the balance sheet should focus on liquidity and fund balance levels as well as trends. The Analyst should review the Current position (cash and investments net of current liabilities) and the quality and trend of accounts receivable and “inter-fund” payables. Liquidity needs during the course of a fiscal year are also important. Fund balances in the context of expenditures, and the issue of timing of a municipality’s tax collection, are important considerations. Municipalities with tax base concentrations or volatile economies may also require higher reserves. The current position should also be analyzed in conjunction with cash flow including timing of tax receipts and disbursements and liquidity of receivables. Trends in cash, investments and receivables helps to determine if the general fund is either being drained or supported by other funds. Other Rating Factors include

- Availability of unencumbered reserves or contingent funds
- Types of investments, uses of investment income as well as use of investment advisors to manage investments.
- Access to short term financing
- Debt limitations: A city nearing its debt limit (the amount of indebtedness approved by the municipality) has less flexibility to meet future capital needs and may be unable to borrow in an emergency
- Pension liabilities: although subordinate to most debt, the Analyst should be aware of political reality attached to payouts, inherent volatility, higher contributions cause fiscal stress, historical trends
- Insurance risk: trends toward self insurance and consequent need to adequately reserve

Liquidity	
Excellent – Historically strong fund balance position and cash flow. High quality assets characterized by ample liquidity. Strong current position indicative of high quality receivables. Consistent oversight and management of pension liabilities	5
Strong – Sound fund balance and cash flow position. Asset base of reasonable quality reflecting appropriate liquidity. Sound current position reflecting reasonable quality receivables. Consistent oversight and management of pension liabilities.	4
Good – Good fund balance position and cash flow. Asset base may exhibit some issues but would typically be mitigated by strong liquidity. Some under funding of pension liabilities but considered manageable in the context of cash flow and liquidity.	3
Fair – Fund balance good but declining. Some asset quality or liquidity issues. Inconsistent oversight and management of pension liabilities.	2
Marginal – Inconsistent cash flow and fund balances and or weak balance sheet position. Frequently operates below budget and with operational deficit. Frequent pension contribution deferral.	1
Weak – Weak or inconsistent cash flow and fund balances and or illiquid balance sheet position. Aggressive investment policy for operating funds. Constantly operates below budget and frequently reports operational deficits. Unfunded accrued pension liability.	0

Term Liabilities: Risk Weighting: 20%

An analysis of debt focuses on the structure of the indebtedness, the nature of debt repayment, the current debt service burden and the future capital needs of an issuer. Appropriateness of the funding mix should also be taken into account. Manageable debt levels are an important consideration as excessive debt can overburden a municipality while low debt levels may indicate under investment in capital projects and facilities. It is desirable that the Counterparty should have sufficient capacity to raise debt when needed. Investments in public infrastructure enhance the growth prospects of the private sector and the neglect of critical capital needs may impede economic growth and endanger future tax revenue generation. Although some capital projects can be deferred in difficult economic times, a failure to maintain existing facilities can cause a backlog of projects and consequently a burden to taxpayers when the backlog needs to be funded. In some circumstances, a municipality may choose to debt finance accumulated deficits which is rarely a permanent cure. Other Rating Factors include:

- Debt burden: ratios such as debt per capita and debt service as a % of the overall budget are typically used. Debt as a percentage of the market value of the property tax base is a typical measure in the US. These measures are comparable across regions but the context of where a community is in its life cycle is important, including its rate of growth and the rate to which infrastructure development is matched to expected demand as well as ability of a municipality to scale back a capital plan should demand fail to materialize.
- Future financing needs: Municipalities should regularly review critical capital needs and schedule capital improvements; existence of a formal capital plan is a positive feature.
- Debt maturity matched to the useful life of the asset or project being financed is desirable.
- Mix between fixed and floating rate debt and use of derivatives, as well as the municipality's understanding of associated risks and benefits.

- The history of past bond referendums is a reflection of the willingness of the community to pay for capital improvements.
- Is the level of indebtedness a matter of public debate?

Term Liabilities	
Excellent – Self supporting debt structure, where the Municipality can easily pay debt service and operating expenses from operating revenues. Outstanding debt’s term matches the useful economic life of the financed assets and is appropriate within the context of the Life Cycle stage of the municipality. Evidence of a formal regular process to assess capital improvements and willingness of the community to support capital improvements through the process of referenda. A strong ability of the Municipality to repay debt obligations as evidenced by high tax base, high levels of income in the community and high level of overall budget resources. Debt service payments consistently running at a low level in the context of overall budget.	5
Strong – Overall debt as evidenced by ratio of debt/ market value of property tax base is moderate and appropriate for the stage of the life cycle of the Municipality. Debt service as a percentage of the budget is manageable. Debt is self supporting from operating revenues or supported by dependable revenue stream such as personal income taxes or broad consumer taxes. Debt amortization is appropriate to the maturity of asset/ project being financed. A formal capital plan is in place and is being adhered to. Debt growth is reasonable and use of derivatives and floating rate issuance is appropriate and handled by experts.	4
Good – Overall debt is trending toward the upper band of tolerance but has a rational basis such as a growing community financing expanding infrastructure. Debt service is relatively high but relates to a high cost single purpose entity such as a school district. Debt is not necessarily self supporting but is underpinned by a strong local and regional economy and the political ability to raise taxes to cover debt payments. Capital plans may not be formalized but evidence of capital planning is in place. Leases and other alternative forms of finance may be used. Debt growth may be relatively aggressive but with a reasonable rationale and use of derivatives is appropriate.	3
Fair – Relatively high level of overall debt and debt service. Source of refunding dependent on revenue stream which may not be dependable and or characterized by less political will to raise taxes to service debt. Lack of a formal capital plan and disruptive or unplanned capital expenditures resulting in volatility. Extensive use of leases and other alternative forms of finance which may be in response to anticipated or actual voter defeat of proposed debt issuance. Aggressive growth in debt issuance. Significant derivative use without in house expertise or use of external consultants.	2
Marginal – High levels of overall debt and debt service. Lack of track record in internal funding of indebtedness. Weak economy which may not be able to support increased taxation to service indebtedness. Absence of any capital planning process combined with significant growth in indebtedness. Inappropriate use of derivatives and floating rate issuance. Low investment in public infrastructure which could lead to a backlog of projects needing to be funded and/or total debt issuance nearing overall debt limitations. Short-term debt growth exceeds annual spending growth. Debt restructuring entails deferring of sizeable portion of the current debt service.	1

Weak – Very high levels of overall indebtedness and debt service. Evidence of a lack of investment in public infrastructure which could lead to a backlog of projects needing to be funded. Evidence of funding of accumulated deficits with further debt issuance. Mismatching of debt maturity in the context of capital projects being funded. Total debt issuance nearing overall debt limitations. Lack of effective capital planning or lack of community support for capital projects. Low tax, community income/wealth or insufficient budget resources.	0
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Fiscal Discipline & Governance: 20%

Evaluation of management (the elected and/or appointed government officials charged with operational and financial decision-making) is an integral part of any analysis. This factor is important to consider due to the significant impact of the level of competence/experience/insight and possible political/partisan motivation of key decision makers on the financial strength and credit quality of local government entities. The ability of officials to implement timely and sound financial decisions in response to economic and fiscal demands depends on the tenure of government officials and the frequency of elections. Background and experience of key members of the administration are also important considerations, especially where they affect policy continuity and the ability to reformulate plans, as is the ability of the management to adhere to long range financial plans and to communicate and document these plans. Income statement and balance sheet projections should form part of the planning process. An evaluation of this Rating Driver includes the following Rating Factors:

- Appropriate, independent and accountable oversight functions
- Economic analysis and revenue forecasting
- Tax policies, including constitutional limits for raising taxes above a given level.
- Risk Management including evidence of hedging instruments, appropriate insurance.
- Financial strategies
- Debt management
- Preparation of adequate, timely and transparent financial reports prepared by independent certified public accountants. Sound accounting methods: GAAP, Governmental Accounting Standards Board (GASB) interpretations of accounting rulings in assessing organization of funds, accruals and other financial reporting, inclusion of Comprehensive Annual Financial Report including significant financial data and statistical data.
- Consistent timing of budget adoption
- Long term fiscal strategy
- Capital forecasting/ capital improvement planning
- Administrative factors including property valuation and assessment trends, property tax administration
- Labor environment
- Operating fund guidelines including prudent practices with regard to liquidity, leverage, credit quality and oversight, appropriate use of derivatives
- Relationships between state and municipalities in terms of funding, push down to local level for provision of services and consequent fiscal strain.
- Consistency of fiscal policies over several administrations, especially when there are political changes.
- Expenditure controls as measured by comparing expenditure growth to economic growth
- Policy capacity and flexibility determined by the presence or absence of fragmented legislature and ability of the executive branch to manage effectively
- Dependence on a few established and experienced administrators
- Who are the decision makers? What is the decision making process?
- Future reliance on transfers from federal authorities.

Fiscal Discipline & Governance	
Excellent – Seasoned and experienced government officials elected to a sufficient term to put in place and carry through fiscally responsible budget and financial planning. Evidence of long range planning process including balance sheet and income statement projections. Consistent timing of budget adoption reflecting efficiency of the budget process. Management should have in place a documented capital improvement plan. An ability to finance capital improvements through operating surpluses. Prudent management of operating fund in terms of liquidity, leverage and credit quality. Sound timely and transparent financial reporting.	5
Strong – An experienced management team that generally follows fiscally responsible budget policies. There is a long range planning process including balance sheet and income statement projections, although there is evidence of missed targets in the past. The budget is usually adopted on time and the budget process is generally efficient. Strong revenue generation allows financing capital improvements primarily through operating surpluses. Consistent and timely financial disclosure.	4
Good – Competent government officials are committed to a fiscally responsible budget and financial planning process. There is a long range planning process including balance sheet and income statement projections but targets are rarely met. Budget adoption can often get delayed reflecting somewhat low efficiency of the budget process. Capital improvements cannot be financed through operating surpluses only. Good financial disclosure.	3
Fair – Competent government officials elected to an insufficient term to put in place and carry through fiscally responsible budget and financial planning. Term in office does not allow for long range planning process including balance sheet and income statement projections. Consistent timing of budget adoption reflecting efficiency of the budget process. Management does not have in place a documented capital improvement plan and capital improvements are mostly funded with external funds. Reasonable financial disclosure.	2
Marginal – Inexperienced government officials elected to put in place and carry through fiscally responsible budget and financial planning. There is no evidence of long range planning process and the budget process is inefficient due to fragmented legislature. Management does not have a documented capital improvement plan nor own-source ability to finance capital improvements through operating surpluses. Somewhat irregular or opaque financial disclosure.	1
Weak – Government officials without credentials or experience or evidence of widespread politically motivated appointments. Overly frequent official elections leading to a lack of continuity and inability to put in place budgets and long range financial planning. Conversely infrequent elections which allow the incumbent decision makers free rein without appropriate oversight by electorate. Lack of evidence of financial, strategic and capital planning. Over reliance on debt to fund capital projects. Frequent late budgets and/ or lack of budget surveillance. Imprudent management of operating fund. Weak and irregular financial disclosure.	0

Internal Facility Rating

Introduction

Due to the relative infrequency of defaults of municipal bond issuers, quantified data and measures of default risk and recovery rates have limited application. From the available data (S&P and Moody's historical default studies of the US Municipal markets) it can be seen that debt issued by US Municipal and Water Sewer entities have suffered zero defaults over the past 30 years. This can be attributed to the fact that US Municipalities are required to levy additional taxes to repay debt backed by a General Obligation pledge. The strength of this pledge ensures that all revenue producing powers of the Municipality are promised to be utilized to satisfy the debt, including the municipality's ability to levy taxes sufficient to pay such debt.

Unlike corporations in the US, US Municipalities cannot file for bankruptcy using either liquidation rules (Chapter 7 in the US) or capital structure reorganization (Chapter 11 in the US) but must file under Chapter 9 under which involuntary bankruptcy filings are not permitted; the rules provide only for an adjustment of the Municipality's debts and not for liquidation. Also the Municipality's powers are not affected by the filing. This allows the Municipality to continue its existence including maintaining its operations and revenue collections during a bankruptcy and allow for a potential payment on the defaulted debt in the future.

To the extent there is a default on general obligation debt in the US, bondholders can seek a writ of mandamus. The writ ordered by a court, directs the appropriate governmental official to levy and collect taxes to pay debt service or to make required debt service payments from other available funds of the municipality. This essentially means that recovery for bond holders should approach 100% over time.

CRM therefore expects to obtain full recovery when dealing with US municipalities. However CRM also recognizes that full recovery could take several years to achieve; using a 12% pa PV factor and a reasonable expectation that most scenarios would be resolved within five years, CRM adjust the expected full recovery rate to 60% (rounded). Although not issuers of general obligation debt, Water Sewer counterparties are providers of essential service which strongly connects them to the tax raising abilities of the underlying US municipalities, and for this reason CRM include them in the universe of Municipal counterparties.

Although there is virtually no data for Municipal type counterparties outside the US, CRM has assumed that both legislative protection and essentiality of service are concepts which would apply on a global basis. Indeed in many countries outside of the U.S., there has been less devolution and hence a greater element of implied/ structural support from the central authorities. This would therefore lead CRM to the same conclusions around both expectation for recovery and the length of time the recovery process would take.

Appendix 11 – Not-For-Profit Entities

Definition

Not-For-Profit (NFP) entities are broadly defined as entities formed to serve a purpose of public service or mutual benefit other than the pursuit or accumulation of profits. Whilst these entities need not be owned or guaranteed by the public sector, in many cases the public sector provides encouragement to entities engaged in a socially beneficial mission. This may be evidenced when such entities are granted some degree of tax exempt status, although having tax exempt status does not in itself define an NFP entity for the purposes of this scorecard. The Analyst may also consider the services of a particular NFP entity of such importance to its “customers” or “client base” that a local or central public authority may be expected to provide explicit support in the event that the service is jeopardized by financial difficulties at the NFP. In return these entities are usually restricted in the scope of their activities and, whilst not necessarily prohibited from making profits, are restricted in what they can do with those profits.

This scorecard is intended to capture entities such as cultural, charitable, educational, health and religious organizations and entities, including US Public Benefit Corporations referred to “501(3)(c)s” (in the US certain types of NFPs qualify under section 501(3)(c) of the Internal Revenue Code and are referred to as Public Benefit Corporations). This will include publicly owned power companies, hospitals, nursing homes, public housing authorities, toll roads and other revenue backed municipal companies. Often NFP entities source a portion of their income from an Endowment Fund or Foundation. When Lehman is dealing directly with the Endowment Fund or Foundation as a separate entity – as distinct from the NFP – then the Analyst should consider using the Collective Investment Schemes scorecard rather than the NFP scorecard. This scorecard is not intended to cover mutually owned entities engaging in nonprofit commercial financial sector activities such as mutual banks and insurance companies.

Internal Credit Rating

Introduction

The analysis of an NFP broadly follows that for a Corporate engaged in a for-profit service sector because the basic credit determinants are common to both types of entity. The Rating Drivers are split between the Operational Evaluation, the Financial Structure Evaluation, and the Public Sector Support Adjustment Factor. The operational evaluation consists of the first four Rating Drivers – External Environment, Revenue Analysis, Operating Efficiency, and Management & Governance – and is intended to establish the Analyst’s view over the credit strength of the Counterparty independently of its financing strategy. The Analyst then reviews the Counterparty’s Financial Structure to establish whether, given the Operational context, the financing is comfortable and appropriate, aggressive or untenable.

The key rating difference between NFPs and for-profit Corporates is the Public Sector Support Adjustment Factor. This Factor enables the Analyst to incorporate an element of external support into the NFP rating. This adjustment is similar to the Government Implied Support Adjustment incorporated into the Banks Scorecard.

ICR Rating Driver	Risk Weighting	Risk Weighting
Operational Evaluation	60%	
External Environment		25%
Revenue Analysis		15%

Operating Efficiency		10%
Management & Governance		10%
Financial Structure Evaluation	40%	
Liquidity		10%
Cash Flow Protection		10%
Financial Leverage & Capital Structure		20%
Total	100%	100%

ICR Conversion Table

Rating Driver based ICR	Rating Drivers' Weighted Score	
	>	<=
iAAA	90	100
iAA	80	90
iA+	75	80
iA	70	75
iA-	65	70
iBBB+	60	65
iBBB	55	60
iBBB-	50	55
iBB+	45	50
iBB	40	45
iBB-	35	40
iB+	30	35
iB	25	30
iB-	20	25
iCCC	0	20

Operational Evaluation: Risk Weighting 60%

The Operational Evaluation consists of four Ratings Drivers. Each rating analysis begins with an assessment of the Counterparty's external operating environment. Whilst NFPs are not necessarily prone to industry risks and price competition or other typical competitive forces facing Corporates, NFPs are nonetheless exposed to exogenous risks that impact their operational viability. The second Driver reviews the Counterparty's sources of revenue and establishes the overall reliability of those revenues in the context of the identified exogenous risks. Whilst minimizing costs and generating profits is not a primary motivation, NFPs still need to cover their operating costs in order to survive and to generate a surplus in order to cushion against unexpected events. The third Driver therefore considers the Counterparty's operational efficiency and the flexibility and breakdown of the cost base between fixed and variable, discretionary and non-discretionary. The fourth Driver covers the Counterparty's Management & Governance. Whilst it may differ in degree to that of a Corporate, an NFP needs appropriate managerial structures, controls and reporting in order to continue to perform its core services; indeed, by their very nature NFPs do not undergo rigorous external oversight or capital markets discipline and therefore there is potentially a higher likelihood that governance issues could manifest themselves, and that those governance issues might not become public knowledge in a timely fashion.

External Environment: Risk Weighting 25%

The first Rating Driver involves identifying and assessing the possible risks and opportunities in the Counterparty’s operating environment. The key factors to identify are the level and stability of revenues flowing into the relevant NFP sector, the structure of the competitive environment (if any), the strength of those competitive forces, and the other external influences that might in the future impact the ability of NFPs to fulfill their missions. These key Rating Factors issues are influenced by a wide range of secondary factors that may be more or less relevant in each individual situation, including:

- Macro economic drivers; demographics, employment, income levels
- Changes or trends in the political environment
- Regulatory Risks; burden of compliance
- Changes or trends in the taxation system
- Changes or trends in the philanthropic environment
- Social, fashion & demographic changes
- Demand drivers – basic need or discretionary item; volatile or stable revenue patterns; price sensitivity of service buyers
- Role of for-profit service providers; number of competing NFP service providers; competitive structure of “industry”;
- Substitute products; can the buyers look elsewhere?
- Cyclical; seasonality; product life cycle
- For the public power market, analysis of the regional power market and role of environmental regulation
- For Healthcare sector, the Analysis includes a review the characteristics of the demand service area including market share and relationships with market constituents, as well as size of the uninsured population and in the US State planning with regard to federal funding of Medicaid/ Medicare. Any strategic alliances can also be taken into account.

External Environment	
Excellent – The external environment is stable, predictable, and non-threatening to incumbents. For example, the NFP operates against the backdrop of a strong and stable local economy and in a stable political environment; the market is mature and well established and is characterized by strong and stable demand and a stable regulatory background; and/ or competitive forces are limited, predictable and easily managed. There are no indications of any meaningful external threats.	5
Strong – The external environment is broadly stable, predictable and non-threatening, although there are certain factors that are or may introduce certain risks not contemplated under “Excellent”. For example the local economy may be generally strong and diversified but economic growth is somewhat or temporarily weak contributing to some volatility or reduction in demand drivers; market is characterized by relatively high barriers to entry/ low competition but is currently subject to unusual competitive action perhaps due to new or expected regulatory or political events. Generally the environment is broadly non-threatening and comfortable for incumbents, and expected to remain so over the longer term.	4
Good – The external environment is broadly stable and predictable, and incumbents are familiar with managing known external forces – none of which are currently particularly threatening providing that the Counterparty’s management maintains vigilance and responds early. For example the economic backdrop remains reasonable and forgiving to the sector, certain key	3

drivers such as regulatory, political, demographic and philanthropic trends may not be as reliable as incumbents would prefer, private sector competition may be well established although competitive forces are foreseeable. Given the cost structure of the sector, revenues flowing in are sufficient to support the current structural arrangements but not sufficient to generate surpluses across the board. Short and medium term sector health is expected, and the longer term is generally reasonable.	
Fair – The external environment is broadly stable and predictable and of limited concern in the short to medium term, although certain key factors may be starting to turn and beginning to threaten the longer term viability of the sector. For example the local economy may be starting to weaken and/ or structural defects becoming apparent leading to increased concern and challenges; the market has moderately low barriers to entry and relatively strong competition, incumbent reliance on certain key legacy political, regulatory, demographic or philanthropic trends may increasingly be misplaced and subject to revision. Generally speaking, revenues flowing into the sector may be under threat of reduced levels and increased volatility, and whilst short to medium term outlook is not of major concern, key weaknesses will need to be addressed if the longer term health is to be assured.	2
Marginal – The external environment has some serious risk elements that impact participant and are or have lead to material changes in the structure of the sector and/or composition, behavior and financial health of participants. For example, the local economy is weak, perhaps going through structural changes, and is struggling to support the non-profit sector; the market is characterized by a volatile unpredictable regulatory or political background (for example heavy dependence on Medicare/ Medicaid funding.); key trends leading to the creation of the sector in the first place (e.g. philanthropy) may be reversing and contributing to questions over the raison d’etre of the sector; barriers to entry are low and significant competition exists. Whilst the sector may be able to survive in the short term, significant and fundamental changes will need to occur to stabilize and recover its financial health in the medium to longer term.	1
Weak – The external environment is extremely risky to incumbents. For example key external drivers such as demographic, regulatory, political or philanthropic trends have turned against the NFP with no likelihood of restitution; the local economy is weak, characterized by low wealth and income levels, and is unable to support the non-profit sector; competitive forces are high with significant turnover of participants; the NFP service is no longer in demand or valued. Incumbents in a weak external environment would not be expected to persist or survive without fundamental changes and a reversal in the environment in the short term.	0

Revenue Analysis: Risk Weighting 15%

Within Revenue Analysis the Analyst reviews the entity’s revenues and therefore its ability to withstand exogenous risks to those revenues. Revenue analysis can include levels (current & trend), sources, “stickiness”/recurrence and potential volatility, identifying particular sources, the split between long term or recurring and short term or transitory sources, and the split between service originated, philanthropic donations and in-house or captive investments (e.g. Endowment). NFPs may also receive donations or other revenues that are tied to certain expenses or investments rather than allowing the NFP flexibility. Other Rating Factors include:

- Revenue reach: share in key markets, product dominance, product diversity (if relevant) and geographic spread; strength of niche

- Ability to influence service price; Product/Price/Promotion/Place mix
- Ability to attract and retain staff
- US non-profit hospitals: ability to create physician loyalty and the managed care contracting strategy.
- Diversification and creditworthiness of major buyers
- Success of fundraising capital campaigns including diversity of donors.
- Stability of income from investments
- Reliance on particular sources; role of local authority or municipality
- Position within sector – leader or follower; quality v cost; vertically or horizontally integrated
- Economies of scale achieved through size
- Public image and/or brand image; “service provider of choice”
- When reviewing the Higher Education sector, the analysis includes admission trends, student quality and retention.

Revenue Analysis	
Excellent – Stable and diverse revenue base characterized by a diverse customer base and or sources of revenue, strong ability to influence pricing and achieve economies of scale and a leading market position where the NFP has the ability to affect pricing and has a strong brand or public image.	5
Strong – Stable and relatively diverse revenue base where the NFP demonstrates strong relationships with clients and or donors and a strong and/ or growing market share and relatively strong brand or public image. The NFP has a good and/ or improving ability to achieve economies of scale.	4
Good – Revenue base is characterized by some volatility and lack of diversity. Competition and moderate size impairs NFP’s ability to influence pricing and market share is moderate.	3
Fair – Limited ability to affect pricing. Dependence on limited service area/ supplier/ donor. NFP experiences significant competition either through new entrants or change in market place. NFP may be dependent on federal funding and therefore exposed to increasing political risk. Limited size impacts efficiencies.	2
Marginal – Recent trends have deteriorated NFP’s market share or future ability to gain market share. Inability to differentiate product/ service from competition. Limited size leads to ineffective competitive position.	1
Weak – Little or no presence in market. Expectation is for continued deterioration.	0

Operating Efficiency: Risk Weighting 10%

The profit potential of an NFP is important insofar as any entity has to contain its expenses in line with its revenues in order to remain viable. The existence of only small surpluses or losses in individual years is not of major importance, but of greater interest is the entity’s ability to breakeven over a longer period – including the Analysts view “through the cycle” – by matching outlays to revenues. Significant losses are indicative of a poorly run operation and suggest there may be financial problems ahead. Particular reference is paid to the cash flow as well as accounting based operating measure. Significant cash outlays should be reviewed to determine their nature (e.g. expense or investment), and term or commitment, although the Counterparty’s ability to meet its capex needs is separately addressed via the Cash Flow Protection Rating Driver. Other Rating Factors include:

- What are the major costs; discretionary or non-discretionary; recurring or one-off; costs of generating revenues or costs associated with donations; variable v fixed v sunk
- Is the service provided on a cost+ basis?
- Is the cost base stable & consistent or volatile
- Does the entity pay market rate staff costs, rent and taxes?
- To what extent can costs be matched with revenues
- Non-core earnings; restructuring or asset valuation changes
- How is the Endowment Fund or Foundation accounted for?
- One time charges due to restructuring and/or write-downs of assets
- Key metrics might include EBIDA, Operating income and Excess or Net Income

Operating Efficiency	
Excellent – Strong earnings growth which has been consistent over several years. Cost base exhibits balance between fixed and variable costs and is controllable/ flexible in line with revenues. One off charges are minimal or non-existent. Ability to generate cash flow and surplus is well above the industry average and exceed competition where applicable.	5
Strong – Earnings and operating cash flows are relatively smooth and minimally impacted by one time charges. Cost base exhibits some, though limited, volatility and there are no significant cost items that cannot be reduced or reversed in line with revenue changes. Surplus trends are above industry average but may exhibit some fluctuation.	4
Good – Earnings and operating cash flows have been relatively stable but perhaps with minimal or limited growth and some indication of volatility. Moderate one time charges may affect earnings. Ability to generate surplus is on par with industry average and the Counterparty may regulatory break even rather than generate surpluses. Cost base shows fluctuations and may not be evenly matched with revenues, but is generally manageable in the short to medium term.	3
Fair – Earnings and/or operating cash flows are volatile and the cost base is somewhat inflexible in the face of revenue fluctuations. The Counterparty generally operates at breakeven though some years it may operate at a loss.	2
Marginal – Earnings and operating cash flows are usually weak or have declined significantly over the last several years and the entity usually operates at a loss more often than it breaks even. Earnings are likely to be well below industry averages. Whilst revenues may also be declining or volatile, the key issue is the entity’s inability to vary its cost base accordingly.	1
Weak – NFP exhibits several years of losses due to inefficient operations and inflexible costs. No expectation of returning to breakeven. Future of NFP is uncertain.	0

Management & Governance: Risk Weighting 10%

As with a Corporate, assessment of Management & Governance focuses on strategy, risk tolerance and funding policies. Significant credit is given for delivering on past projections or maintaining previously articulated strategies when evaluating future growth plans and related financial projections. Close review of the entity’s board of directors and their ability to remain independent are key as well as the integrity of the audit process. Whilst the Analyst is encouraged to review all aspects of the entity’s Management & Governance, the Analyst can choose to emphasize particular factors as being more pertinent than others when assessing the score for any particular entity.

- Reliance on Key Personnel both for managing the entity and for promoting the entity or sourcing revenues
- Management style, tenure, turnaround, profile, experience, reputation
- Management’s track record in terms of ability to deliver on past projections or maintaining previously articulated strategies; transparency and provision of projections or budget
- Evidence of poorly considered investments, outlays or sponsorships
- Management & staff incentives
- Political influence; political connections; influence of other external stakeholders
- Corporate governance issues including:
 - Independence and effectiveness of board of directors
 - Related-party transactions
 - Ownership structure
 - Legal/regulatory structure and arrangements by which the public corporate entity exists
 - Existence/extent of external discipline
 - External communications: the transparency, timeliness and reliability of accounting and other public disclosures

Management & Governance	
Excellent – Experienced management team with a track record of achieving strategic goals. Evidence of budgeting process with projections being achieved. Where applicable mergers are properly motivated and appropriately funded. Timely production of external communications. Board members are independent. Limited amount of restructurings or accounting restatements.	5
Strong – Management team characterized by several years of experience and a track record of achieving goals with limited restructurings. Where applicable, acquisitions appetite is modest. Board members are largely independent and financial reporting is of good quality. Restructuring and restatements are limited with minimal effect on past earnings.	4
Good – Management has modest level of experience. Projections and financial reporting have occasionally exhibited errors. NFP has experienced some senior management staff turnover. Some board members are independent. Some evidence of restatements which impact earnings. Financial reporting may not always be timely.	3
Fair – Management is relatively new. On occasion restructurings have been necessary to address changes in strategy and restatements are frequent. Credit agreements have been amended as a result of covenant defaults. Minimal representation of independent directors on the board.	2
Marginal – Management has minimal expertise and has experienced significant turnover. Lack of consistent planning has caused substantial restructuring costs. Substantive financial restatements have occurred which may have delayed financial reporting.	1
Weak – Management has questionable practices and has reportedly been under investigation by regulators. Lack of adequate financial disclosure or evidence of budgeting or planning process.	0

Financial Structure Evaluation: Risk Weighting 40%

The Financial Structure Evaluation considers debt and liquidity to determine to what extent the Financial Structure impairs the Counterparty’s credit standing, by reviewing the entity’s funding and liquidity strategies and policies and current financial structure in the context of the Operating Evaluation. Entities with lower risk operations have higher debt capacity than entities with higher risk

operations, and thus the Analyst reviews financing against the operating profile to determine whether the financing is well within the Counterparty's debt capacity, broadly acceptable, or aggressive or untenable. The motivation for assuming debt should also be considered as this indicates not only the likelihood of repayment (e.g. expense or investment; does the investment generate revenues that will repay the funding) but also management's risk appetite and tolerance for future leverage (this is captured in the Management & Governance Driver). The Financial Structure Evaluation is split into three key Rating Drivers: Liquidity, Cash Flow Protection and Financial Leverage/ Capital Structure.

Liquidity: Risk Weighting 10%

An entity's liquidity and financial flexibility is derived from its stock of cash and other liquid assets, its ability to sell other assets at short notice, and its access to external capital either in the form of committed debt facilities, house banking relationships, or tapping existing debt issuance programs. Financial flexibility allows an NFP the latitude to meet its expected non-operating cash demands such as refinancing and capital expenditure requirements, and to manage unexpected stresses, bulky non-operating demands and other operating adversities without eroding credit quality. Cet par, the more conservatively funded the entity, the greater its flexibility in terms of raising external funding. In addition, a commitment to maintaining debt within a certain range allows an entity to cope with the impact of unexpected events on the balance sheet. Other Rating Factors which help determine financial flexibility include:

- Current assets to current liabilities; working capital controls and trends
- Imminent/ scheduled/ committed capital expenditure requirements
- Existence of/ availability under commercial paper program or bank facility; any related financial covenants
- Amortization schedule of long-term debt; bunching; current portion of long term debt
- Access to debt markets; can the entity issue in the tax exempt space; is this a liquid market
- Cash and marketable securities balance held by entity, taking into special consideration any restricted cash, cash which may be held at affiliates, and liquid assets which may form part of the Endowment Fund or Foundation which, whilst "consolidated" into the NFPs financial statements, may not actually be available to the NFP for disposal
- Refinancing risk and reliance on proceeds from asset sales
- Liquidity event to post collateral for trading position caused by ratings downgrade
- Generation of cash balance from free cash flow or external debt issuance

Liquidity	
Excellent – High levels of unencumbered cash balances. Limited reliance on short term debt. Strong and demonstrated access to capital markets.	5
Strong – Comfortable availability under credit agreements and sound cash balances. Debt obligations are moderate and NFP has good access to capital markets.	4
Good – Reasonable availability under credit agreements and limited cash balances. Debt obligations may impact capital spending and growth in the near term. Credit agreements and or external ratings may impact access to capital markets.	3
Fair – Reliance on external cash flow to fund operations. Debt obligations have near term maturities. Asset sales may be required to fund debt obligations. Moderate refinancing risk restricts ability to fund capital expenditures.	2
Marginal – Inability to fund operations and service debt without external financing. Asset sales required to reduce debt burden due to inability to access capital markets.	1

Weak – Minimal cash flow and cash balance. Entity is restructuring debt and has limited ability to access external financing. Operating near insolvency.	0
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Cash Flow Protection: Risk Weighting 10%

Cash flow from operations provides an NFP with more secure credit protection than dependence on external sources of capital. Cash flow protection is a flow measure that assesses the relationship of internally generated cash flow to external debt and debt service commitments. Where an NFP has no or immaterial external debt and no or immaterial capex requirements the Analyst can assign a score of “Excellent” regardless of volatility in the cash flow measure itself since this aspect has already been picked up in the Operational Evaluation.

- Measures ability of the entity to cover its interest expense, mandatory principal debt obligations and capital expenditures through internally generated operating cash flow
- Critical for determining if the entity will need to access capital markets to generate additional cash to meet its debt obligations and internal growth requirements/ capex needs.
- Level of debt servicing capability that is either stronger or weaker than might be apparent from earnings
- Analysis of ability to service debt internally based on historical trends as well as through projections and bank facility financial covenants

Cash Flow Protection	
Excellent – Cash flow is growing and has minimal volatility. Ability to service debt internally without reliance on refinancing. Ability to fund capital expenditures without external financing.	5
Strong – Cash flow generation is stable and is able to generate sufficient funds internally to pay interest although large principal payments may need to be refinanced. Expenditures can be financed from internal cash flow.	4
Good – Cash flow generation has been flat and may have experienced volatility. NFP is marginally able to fund interest expense from operating cash flow (EBIDA). Capital expenditures are funded through external sources of financing.	3
Fair – Cash flow generation is volatile and the NFP has been unable to pay interest expense. NFP is unable to grow organically and fund capital expenditures from internal cash flow and must raise funds externally.	2
Marginal – Internal cash flow is negative or highly volatile. External financing is required to fund interest expense.	1
Weak – Internal cash flow is negative and external funding is required to maintain operations.	0

Financial Leverage & Capital Structure: Risk Weighting 20%

The NFP’s financial leverage score is intended to measure the amount of external finance and other external obligations the entity has in its external term financing structure relative to both its stock of internal capital and to its ability to service these external obligations through the cycle by generating internal cash flow. This ability is assessed with reference to the Analyst’s view over the Counterparty’s debt capacity. External finance includes any term liability and includes, inter alia, debt funding, pension reserves, provisions for environmental or litigation costs, operating & finance leases, and any other off-balance sheet liabilities.

- Leverage: debt adjusted for other obligations (pensions, securitizations, leases)

- Repayment profile (bunching, smoothing, refinancing policies); how much of debt is short-term (i.e. CP) vs. long-term; maturity profile of outstanding debt
- Debt constituents (bank facilities v bonds); put options in bonds; convertibles; zero coupons; and hedging and currency matching
- Review of leverage ratios including a stock measure (e.g. Debt/ Net Assets) and a flow measure (e.g. Debt/ EBIDA)

Financial Leverage & Capital Structure	
Excellent – Total capitalization is primarily composed of net assets. Capital is long term with limited short term debt maturities. Limited use of off balance sheet and lease financing.	5
Strong – Majority of capital consists of net assets. Long term debt has a medium duration with minimal amounts due in the near term. Modest use of off balance sheet and lease financing.	4
Good – Capitalization is mixed between net assets and debt. Leverage ratios are average for the industry. Appropriate use of off balance sheet and lease financing.	3
Fair – Large portion of capitalization comprised of debt which may include significant near term maturities. Leverage ratios indicate the NFP may have insufficient internal cash flow to repay debt maturities and will have refinancing risk. Large portion of liquid assets are restricted. Off balance sheet commitments are significant.	2
Marginal – Capital is composed mainly of debt and NFP has engaged in a significant number of restructurings. Leverage ratios are well above industry average.	1
Weak – Capital is entirely composed of debt and the NFP may be operating close to insolvency. Debt is in the process of being restructured.	0

Public Sector Support Adjustment Factor

The public sector naturally has an interest in the NFP sector because these entities usually perform a type of social mission or public service which might otherwise be directly provided by the public sector, and which the private sector would generally fail to provide at a socially acceptable cost and in a socially inclusive manner. Indeed the public sector often implicitly or explicitly promotes and fosters such entities. The clearest indication of such support is a public sector guarantee. If such a guarantee benefits Lehman Brothers and qualifies according to the terms of the Connected Counterparty Policy then the Analyst is entitled to assign the rating of the formal support provider to the NFP.

However the Public Sector does not generally provide blanket guarantees to these entities but it may provide ongoing support in other ways including:

- Assigning tax exempt status
- Providing general revenues & subsidizing costs e.g. in the form of discretionary donations, recurring donations or appropriations of particular tax revenues
- Subsidizing specific costs e.g. contributing monies to specific infrastructure projects (such as a hospital or school construction), or provided committed recurring revenues (e.g. health or education subsidies per patient or student)
- Sponsoring or supporting particular NFP entity or NFP sector bond issues

To determine the extent to which the Public Sector may step in to support an NFP and stabilize or resolve a situation of financial distress the key questions for the Analyst to address are

- How critical is the NFP’s activities to the community, and which level of community is affected: local, regional, national or international?
- How critical is the NFP’s activities to the Public Sector, and which level of the Public Sector might be affected: local or regional municipality, Central Government or Supranational/ Inter-governmental?
- To what extent would the Public Sector have to directly assume provision of this service should the NFP fail; which level of Public sector might assume this role?
- To what extent has the Public Sector already evidenced support for this particular NFP entity and for this NFP sector/ type of NFP?
- To what extent does the political climate encourage or discourage the Public Sector from providing future support to NFPs in general and to this NFP sector in particular?
- To what extent does the relevant Public Sector unit have the resources to support the NFP entity?

Based on the outcome to these questions the Analyst assesses the likely impact of the particular NFP’s failure:

1. NFP entity failure would create significant, potentially critical, issues within the affected community.
2. NFP entity failure would create serious or material issues within the affected community which could have repercussions for an extended period of time
3. NFP entity failure would most likely create short term meaningful stresses within the affected community but which would be dissipated over the medium term
4. NFP entity failure would have limited or no meaningful impact on the affected community

The Analyst also establishes the ability and willingness of the relevant Public Sector unit to provide support to the relevant NFP sector

1. The Public Sector has the ability and is clearly willing to provide support, and it is likely that the Public Sector already provides a material degree of support to the sector.
2. The Public Sector has the ability to support the entity and whilst there may be a moral obligation to provide support, the Public Sector’s willingness cannot be viewed certain. There may be some evidence of existing support.
3. The Public Sector has the ability to support the entity but it is not likely that the unit would necessarily step into provide such support. The Public Sector is unlikely to be providing any particular support currently.
4. the Public Sector does not have the ability, regardless of willingness and existing support, to provide such support in need.

These results are then referenced to a grid which indicates the assigned Public Sector Support Category.

	PS 1	PS 2	PS 3	PS 4
NFP 1	Category 1	Category 1	Category 2	Category 4
NFP 2	Category 1	Category 2	Category 3	Category 4
NFP 3	Category 2	Category 3	Category 3	Category 4
NFP 4	Category 3	Category 3	Category 4	Category 4

Category 1: Support is considered Most Likely

The Analyst is entitled to rate the NFP entity up to the ICR of the Public Sector unit. For the purposes of this policy, if the Public Sector unit does not already carry an ICR the Analyst is entitled to utilize the lower of the available External Agency ratings.

Category 2: Support is considered Probable

The Analyst is entitled to rate the NFP entity up to six notches above its Rating Driver based ICR albeit capped at one notch below the ICR of the relevant Public Sector unit.

(Note that a Category 2 adjustment can only improve a Rating Driver Based ICR. An NFP that is already rated at or above the relevant Public Sector unit can remain at that level and is not subject to downward revision. Note that an NFP with an Rating Driver Based ICR that is already rated higher than its host Sovereign Rating will remain capped to its Sovereign rating, but is not subject to further downward revision based on Category 2 membership.)

Category 3: Support is considered Possible

The Analyst is entitled to rate the NFP entity up to three notches above its Rating Driver based ICR capped at two notches below the ICR of the relevant Public Sector unit.

(Note that a Category 3 adjustment can only improve a Rating Driver based ICR. An NFP that has a Rating Driver based ICR above, at, or one notch lower than the relevant Public Sector unit can remain at that rating and is not subject to downward revision. Note that an NFP that is already rated higher than its Sovereign Rating will be capped at its Sovereign Rating, but is not subject to further downward revision based on Category 3 membership.)

Category 4: Support is considered Doubtful

No adjustment shall be made for an NFP that does not qualify under Categories 1, 2 or 3.

Internal Facility Rating

Introduction

The IFR for a Counterparty using the Not-For-Scorecard is assigned using the Ratings Driver Based Approach, Corporate Form; although some form of support or restructuring may be available to NFP counterparties during the deterioration in their underlying credit quality, once an NFP has defaulted or entered into financial distress CRM do not believe any support from the reference Public Sector unit would be available to the benefit of third party creditors. This approach consists of increasing or decreasing the Base Reference Recovery Rate (BRRR, stated as a percentage value) by the cumulative percentage points (%pts) impact of the following IFR Ratings Drivers – the Jurisdiction Adjustment, an adjustment for residual asset values (Asset Evaluation), an adjustment for the relevant Seniority & Security, and the Complexity Adjustment – to determine the Proposed IFR by reference to the standard IFR Conversion Table.

The Base Reference Recovery Rate, the Jurisdiction Adjustment, the Complexity Adjustment, the Cushion and the IFR Conversion Table are further discussed in Appendix 14. This current Appendix covers the adjustments for asset values (Asset Evaluation) and Seniority & Security.

Asset Evaluation

Industry Distress

Industry membership in itself is not considered to be a primary driver of recovery rates. However, set par, if any given Industry is considered to be in distress then CRM believe this is likely to result in lower Industry wide recovery rates than otherwise expected (compared to the BRRR). Industry distress is proxied by reference to the External Environment Driver score in the ICR Ratings Driver

section: the greater the exogenous threats facing all Counterparties within any given Industry, the less likely those Counterparties' component assets would prove attractive to buyers, or retain their value, through a work out process. For conservatism, CRM do not credit the BRRR for Counterparties with relatively lower exogenous threats.

Industry Distress	
ICR External Environment	Adjustment to BRRR
Excellent, Strong, Good, Fair	No Adjustment
Marginal	-5%pts
Weak	-10%pts

Asset Efficiency

Cet par, assets that are operated efficiently are not only less likely to default but are also more likely to recover value via a workout process than inefficient assets. On the other hand assets that generate losses are less likely to recover the BRRR than the average Counterparty. Asset Efficiency is captured from the Operating Efficiency score in the ICR Ratings Driver section. CRM consider this impact on the BRRR less significant than for Industry Distress. For conservatism, CRM do not credit the BRRR for Counterparties with relatively higher inherent asset efficiency.

Asset Efficiency	
ICR Operating Efficiency	Adjustment to BRRR
Excellent, Strong, Good, Fair	No Adjustment
Marginal	-3%pts
Weak	-5%pts

Asset Protection

Cet par, certain Assets are more likely than others to retain value, i.e. provide better Creditor protection, during a workout procedure. Asset Protection is likely to be higher if the Counterparty has a large proportion of high quality current assets (e.g. >50% of total assets, excluding current assets that are highly correlated with the business such as work in progress or finished stock, and delinquent receivables), and/or high proportion of PPE with alternative uses (e.g. > 50% of total assets excluding sunk costs and taking into account any assets for which book value may be a misleading indicator), and/or significant brand value and other off-balance sheet items offering material protection. CRM refer to the summation of such current assets, PPE and off balance sheet items as the level of Hard Assets, and the remainder as Soft Assets. Often Counterparties in any given Industry Class might be expected to share certain common features. The distinction between High, Moderate and Low is not explicitly measured or defined given the potential variability on a Counterparty by Counterparty basis, and the choice over assigned score is therefore based on the Analyst's Expert Judgment.

Asset Protection	
	Adjustment to BRRR
High – predominantly Hard Assets	+10%pts
Moderate – a broad balance in Asset mix	No Adjustment
Low – predominantly Soft Assets	-10%pts

Seniority & Security

The Analysts scoring over Seniority and Security potentially has the largest single impact on the BRRR of all the adjustment drivers. This factor is assessed at the Contract Level. Seniority speaks to the level of an individual Facility in the priority of payments ordering in the event of a breakup,

assuming that the absolute priority rule holds. If the Analyst has any reason to believe that the absolute priority rule will not hold then the Facility should be assigned to a lower, more appropriate, Seniority level. Security often goes hand-in-hand with Seniority i.e. Senior Secured is a common ranking whereas Subordinated Secured is not. Having Security improves the creditor’s expected recovery position due to two features (a) increased control over the workout process and (b) particular asset liquidation values accrue primarily to the secured creditor rather than being diluted into the general creditor pool.

Seniority & Security	
	Adjustment to BRRR
Senior Secured 1 st lien over all Hard Assets	+30%pts
Senior Secured 1 st lien over partial Hard Assets	+15%pts
Stock pledge (immaterial actual or potential structural subordination)	+10%pts
Stock pledge (material actual or potential structural subordination)	+5%pts
Senior Secured 2 nd lien over any assets	+5%pts
Senior Unsecured	No Adjustment
Subordinated	-20%pts

Appendix 12 – Pension Funds

Definition

The Pension Fund scorecard is intended to cover both public and private sector Defined Benefit Pension Funds that are narrowly defined as closed, funded, autonomous pension entities housing both the pension fund's assets and liabilities. This scorecard framework assumes the existence of a Pension Supervisor. If the pension fund is not supervised this approach is not applicable and the pension fund should be assessed on a bespoke basis.

National pension systems are typically represented by a “multi-pillar” structure with the sources of retirement income derived from a mixture of government, employment and individual savings: Pillar 1 – the state, often a combination of a universal entitlement and an earnings-related component; Pillar 2 – occupational pension funds organized at the workplace; and Pillar 3 – private savings plans and products for individuals. Pillar 1 programs are primarily a fiscal issue based on inter-generational transfers via pay-as-you-go arrangements. Pillar 3 programs are generally structured as long term, tax advantaged individual or collective investment and savings schemes (e.g. UK AVCs) often operated and managed by insurance companies as either on-balance sheet (e.g. unit linked or linked accounts) or off-balance sheet (e.g. mutual funds).

Pillar 2 programs are usually funded by contributions from both the employer and the employee, and can be split into two main types. In a Defined Benefit Pension (DBP) Funds the employee knows the terms of the benefit that he or she will receive upon retirement, usually based on a formula linked to the employee's wages or salaries and length of employment. The plan sponsor – usually the employer, groups of employers, labor or professional associations – is responsible for investing in a fund in order to meet its obligations to the employee, and therefore the plan sponsor faces the investment and longevity risk of the fund and may need to vary its contributions over time in order to ensure future obligations can be met.

In a Defined Contribution Pension (DCP) Fund (e.g. US 401(k)) the plan sponsor neither defines nor promises any particular level of future benefits but rather known contributions are paid into the fund by both the employer and the employee, and the employee takes the investment and longevity risk. The economic characteristics and structural arrangements of DCP Funds are very similar to Pillar 3. In many countries it is common practice for plan sponsors to fund both types of occupational pension liabilities in advance, or as the future benefits accrue to plan members, by building up a pool of assets to meet those future obligations because advance funding provides additional security to beneficiaries.

DBP Funds vary in the type of funding vehicles permitted (autonomous pension funds or insurance policies), the type of autonomous pension fund (pension entity or separate accounts) and the legal form of the pension entity (trust, foundation, corporate entity). An autonomous pension fund is defined as a pension fund that is legally separated from the plan sponsor and taking the form of either a special purpose legal entity (pension entity) or a separate account managed by financial institutions on behalf of the plan/fund members. DBP funds can also be classified according to the nature of their membership, with closed pension funds being funds that support only pension plans that are limited to certain employees (i.e. those of an employer or group of employers). Closed funds generally have stable (most cases guaranteed) membership as a result of automatic enrolment to the pension plan as part of the employment contract. The assets of pension entities may be self administered or insured, in which case control and decision making passes to the insurance provider.

There are three main legal forms for pension entities, based on whether they have separate legal personality and capacity, and the nature of the legal title to ownership of assets. Pension entities with legal personality and capacity have internal governing bodies which control the administration of the

pension fund. Pension entities that do not have legal personality and capacity are administered by external governing bodies.

- In the corporate form, the pension fund is a separate corporate entity with legal personality and capacity where the plan members have legal title to the pension assets or capital. The governing body is internal, usually a board of directors.
- In the foundation form, the pension fund is also a separate corporate entity with legal personality and capacity, but plan members do not have legal title to the pension fund assets, except, possibly, in some cases, such as bankruptcy of the plan sponsor or unwinding of the plan. Plan members are on the other hand, the beneficiaries from the investment of those assets, and may hold legal rights over the plan benefits that the pension fund supports. The governing body is internal, usually a board of directors. Examples of pension funds operating as foundations include closed pension funds in the Netherlands.
- In the trust form, the pension fund does not have legal personality or capacity. Plan members do not have legal title to the pension assets, except, possibly, in some cases, such as bankruptcy of the plan sponsor or unwinding of the plan. Instead, the legal title to the pension fund assets held in a trust is vested on trustees, who are the governing body of the fund. Trustees must administer the trust assets in the sole interest of the plan participants, who are the beneficiaries from the investment of those assets according to the trust deed. The basic principle of trust law is that the assets of each trust must be segregated from the assets of all other trusts administered by it and from its own assets. The US and UK recognize the trust as the main legal form for pension funds.

The main alternative to setting up the pension fund as a pension entity is to deposit the contributions in a separate account or pool of assets of a financial institution or a dedicated provider (pension managing companies) where they are invested with the objective of funding the retirement benefits of the plan members and beneficiaries. Separate accounts have a contractual legal form under which the pension fund does not have legal personality or capacity, but the plan members have a legal title to the pension fund assets. The pension fund assets are held in an account managed by a financial company for plan affiliates, where the account is legally separated from the balance sheet of the managing entity. The pension managing company is the governing body of the fund and the benefit obligations remain obligations of the sponsor: the separate accounts effectively act as collateral for the beneficiaries. Plans operated as separate accounts are not covered by this scorecard but are covered by the Collective Investment Schemes scorecard because Lehman is trading with a pool of assets rather than an entity which includes benefit liabilities.

	Legal title to pension assets	No legal title to pension assets
Legal personality and capacity	Corporate form	Foundation
No legal personality or capacity	Contractual form	Trust

In a few countries plan sponsors may manage pension liabilities via book reserve methods, although in these cases the insurance of employer pension liabilities is often mandatory. Under book reserve methods, which are common in Germany and Austria, the employer accrues pension liabilities to a pension reserve and invests these funds back into the business; book reserve methods are unfunded. The beneficiary is therefore effectively continuing to draw wages from the employer during retirement.

Public Pension Funds are defined as those primarily sponsored by the public sector such as central or local government employee pension funds. Private Pension Funds are those primarily sponsored by the private sector including single employers, multiple employers, occupational/industry schemes or union/Taft Hartley and other labor association schemes. Notwithstanding the above discussion, we

hereafter refer to the DBP fund entities covered by the Pension Funds Scorecard as “pension funds” or “DBP funds”.

Internal Credit Rating

Introduction

The first step in assigning ICRs to pension funds is to define what is meant by default for a pension fund. For Corporates and Financial Institutions a default event is defined as a payment default, distressed restructuring of its credit obligations or being placed into bankruptcy or similar creditor protection. The probability of these events occurring is proxied by how likely or close the Counterparty is to becoming insolvent (liabilities > assets) or being unable to meet its obligations as they fall due (size and timing of outflows v size and timing of inflows). The probability of default for a pension fund is usually proxied via its solvency because, generally speaking, cash outflows are normally long term in nature whereas the majority of assets are normally, comparatively speaking, disposable in a far shorter time frame and hence it is extremely unlikely that a pension fund would default on a payment whilst remaining solvent.

The solvency of a pension fund is a contentious and elusive concept, and relies on making various assumptions and estimates around its assets and future liabilities. Assets are generally assessed at Fair Market Value (FMV) although this does not necessarily mean marked-to-market, and liabilities are assessed based on actuarial assumptions over financial (e.g. inflation, salary growth, discount rate) and demographic factors (e.g. length of service, longevity). There are two basic approaches to assessing liabilities

1. Solvency on an ongoing basis. The assets of the fund are compared to the Projected Benefit Obligation (PBO) which is the present value of pension benefits earned as of the balance sheet date, including projected salary increases for plans where benefits are based on final pay and length of service formulae, assuming that the employer is a going concern.
2. Solvency in the event of a wind up. The assets of the fund are compared to either the Accumulated Benefit Obligation (ABO), which is the present value of pension benefits earned as of the balance sheet date based on current salaries (this figure represents the plan’s obligations assuming the plan provides no additional benefits based on future pay or service with the employer), or the Vested Benefit Obligation (VBO), which is the present value of all benefits earned to date assuming all employees decide to terminate as of the balance sheet date. More stringently, these tests might establish whether, if the assets were instantaneously sold, enough value would be generated to purchase annuities and deferred annuities sufficient to meet the ABO or VBO.

Comparing the FMV with PBO, ABO and VBO results in three solvency measures and indicate whether the plan is “over funded” or “under funded”.

Choice of discount rate is the most contentious aspect. UK, US and IAS GAAP require the discount rate to reflect the yield on a “high-quality corporate bond”, which is often taken to mean AA/Aa rated and being the risk free rate plus a premium for un-diversifiable risk due to the sponsor’s ability to potentially manipulate or unilaterally reduce future benefits. However for regulatory reporting purposes, internal risk management or in computing the contribution rate the construction of the discount rate may not be obvious and may include expected returns on assets. The quickest way to eliminate under funding and/or reduce a sponsor’s future contributions is to increase the discount rate. Point-in-time measures do not properly account for future variability in the assets and liabilities.

However, neither the choice of discount rate, asset selection nor the resulting solvency measure(s) actually indicate whether or not the plan can actually make good on its pension obligations. “Insolvent” pension funds do not close down, nor does it mean that they will fail to provide pensions;

indeed, depending on the maturity of the fund, the calculation basis and contribution rates, under funding (e.g. managing to ERISA (US Employment Retirement Income Security Act 1974) minimums or the avoidance of PBGC (US Pensions Benefit Guarantee Corporation) variable rate contributions) may be a valid corporate cash flow strategy. CRM also acknowledges that it is extremely difficult to execute a detailed, independent analysis of a pension fund’s solvency status as this would be tantamount to performing a second actuarial assessment, which is a task for which there is insufficient public data.

“...all funding and solvency standards focus attention on the wrong question: whether, given certain investment assumptions and methods of calculating liabilities, the value of a defined benefit pension fund’s assets exceeds its liabilities at any given date. This is not the same question as whether or not a pension fund will in practice be able to pay its pensions. That will depend on future investment returns and the investment strategy of the fund, which in turn depends on its maturity, the strength and risk appetite of the sponsoring employer and the views and actions of the trustees.”

Myners Report (paragraph 65, page 12) “Institutional Investment in the United Kingdom: A Review” (2001). The Myners Report was commissioned by the UK Government in 2000 to consider the investment decision making process of institutional investors.

In practice a ‘distressed’ pension fund likely to undergo a restructuring which may result in a reduction in expected payments to plan beneficiaries. Restructuring is likely to happen if two events occur (a) the plan sponsor fails to maintain its contributions to required levels i.e. it defaults to the pension fund and (b) at that time, the funding position of the pension fund is insufficient to meet its then-determined contractual obligations. CRM’s approach to assessing and assigning ICRs to Pension Funds thus focuses on three main elements to proxy the probability of a distressed restructuring: the Governance of the fund, the Asset-Liability Management of the fund, and the ability and willingness of the Plan Sponsor(s) to continue to fund the liabilities. Disclosure and transparency are often issues when dealing with Pension Funds. In situations where Pension Funds are unwilling to provide complete and transparent information, or sufficient information is not available in the Annual Report of the sponsor, the Analyst should rate the Fund conservatively in line with Global Credit Policy.

ICR Rating Driver	Risk Weighting	Risk Weighting
Governance	25%	
Regulatory Environment		15%
Governing Body		5%
Professional Advisors		5%
Asset-Liability Management	25%	
Solvency		15%
Investments & Liquidity		10%
Plan Sponsor(s)	50%	
Credit Rating		40%
Under Funding Burden		10%
Total	100%	100%

It should be noted that while Lehman considers its position as senior unsecured creditor to be senior to plan members – plan members have a residual claim on the net asset pool and are hence considered subordinated to creditors providing financial services and tools to manage that asset pool – CRM proxy default to Lehman Brothers by a more general assessment over the likelihood that the fund will enter a distressed restructuring.

ICR Conversion Table

Rating Driver based ICR	Rating Drivers' Weighted Score	
	>	<=
iAAA	90	100
iAA	80	90
iA+	75	80
iA	70	75
iA-	65	70
iBBB+	60	65
iBBB	55	60
iBBB-	50	55
iBB+	45	50
iBB	40	45
iBB-	35	40
iB+	30	35
iB	25	30
iB-	20	25
iCCC	0	20

Governance: Risk Weighting 25%

Governance refers to the manner in which an institution is governed and regulated, its method of management, and/or its system of regulations. The governance of pension funds consists of all the relationships between the different entities and persons involved in the operation of the fund, provides the structure through which the objectives of the pension fund and the means of attaining those objectives are set, and through which performance is monitored. Agency problems include poor management (e.g. fraud, misappropriation), poor investment decision making (e.g. investing in stock issued by the sponsor, choosing professional advisors based on connections or personal incentives rather than ability), inappropriate valuation of liabilities (e.g. undervaluing liabilities to alleviate the contribution burden on the sponsor) and an overall lack of transparency, disclosure and regular, high quality professional advice. Whilst several of these issues are assessed elsewhere in the scorecard, the Governance section focuses on the features of the Regulatory Environment, the role and quality of the Governing Body, and the role and quality of the fund's Professional Advisors.

Regulatory Environment: Risk Weighting 15%

Generally speaking the supervision of pension funds has traditionally been conducted by bodies primarily concerned with labor and benefits, focusing on such things as the protection of pensioner and employee rights, rather than the quality of decision making, the control infrastructure, or the risks in the financial markets. Current regulatory standards often involve setting minimum funding requirements, stipulating discount rates, restricting certain investments or asset holdings, and invoking the concept of the "prudent man" but these standards vary in their quality and application, and occasionally they distort the performance and behavior of pension funds. Whilst the incidence of fraud in well regulated pension systems is now relatively low, pension funds are still continuously entering and exiting financial distress based on the solvency of the sponsor and the state of the financial markets. The term Pension Supervisor should be taken to refer to both regulatory bodies and/or to Pension Guarantee Funds.

From a third party creditor perspective, there are six high level key desirable features of the Regulatory Environment:

- the Supervisor has (a) clear responsibilities (b) operational independence from political authorities and commercial interference and (c) adequate powers, legal protection, proper resources and staff, and the capacity to perform its functions and exercise its powers; the Supervisor has been seen to exercise its powers in a timely manner.
- the Supervisor has the authority to inspect and, where necessary, require the revision of the founding documents of pension funds; the authority to execute a fit-and-proper test of the members of the governing body of the pension fund and to disqualify members of the governing body on the basis of this test; the authority to issue and revoke pension fund licenses
- the Supervisor issues suitable and prudent rules designed to ensure that assets are fully segregated from the sponsor, are invested in a manner that benefits the fund beneficiaries and without significant investment concentrations, and are valued in a manner that fairly evidences expected disposal values
- the Supervisor issues suitable and reasonable liability valuation procedures, regulatory discount rates and solvency rules; such rates and rules are periodically revised as appropriate to the management of the fund and without political influence.
- the Supervisor has the authority to require periodic financial reporting of the fund and the ability to conduct further off and on-site due diligence in a timely manner based on the Supervisor's assessment of potential financial distress. Reporting standards are significantly strengthened if the financial reporting is comprehensive and counter signed by relevant external professional advisors.
- the Supervisor has the authority to take over the running of a pension fund if the fund enters into a distressed situation, either via referring certain of the governing body's decisions to the supervisor, by transferring full decision making to the Supervisor, or by transferring the fund's assets and liabilities to a central pension structure.

Each fund located in any particular jurisdiction and subject to common Pension Supervision would be expected to score the same value for Regulatory Environment. The Regulatory Environment is assessed as a score out of 6 points:

- if the desired feature exists, in practice as well as in theory → score 0.5 points
- if the desired feature exists and is considered a strong risk control feature of the Pension Supervision system by the Analyst → score 1.0 point.
- Sum the points; if the total is 0.5, 1.5, 2.5, 3.5, 4.5 or 5.5 the Analyst should round up or down to the nearest whole number based on their overall view of the Regulatory Environment
- The resulting scores map to the scorecard in the following manner: 6 => Excellent, 5=> Strong, 4 => Good, 3 => Fair, 2 => Marginal, 1 or 0 => Weak.

Governing Body: Risk Weighting 5%

The Governing Body is directly responsible for the Governance of the fund and is charged with ensuring that the fund is able to meet its pension obligations. There may be natural conflicts of interest between certain members of the Governing Body e.g. representatives of the sponsor may desire to minimize the contribution burden on the sponsor and invest assets into the sponsor's stock, current employees may wish to invest the funds assets for long term growth and maximize the company's payments to its labor force regardless of whether that comes in the form of current wages or pension contributions, and current beneficiaries may wish to maximize the company's contributions to the pension fund and invest those assets for capital certainty.

From a third party creditor perspective there are six key desirable features of the Governing Body

- a Governing Body exists and has responsibility for the key decision making and control processes in place in assessing the fund's liabilities and managing the fund's assets; the Governing Body is accountable and legally liable for its actions
- the Governing Body is staffed via an independent election and appointment process. The appointed period should not be too short (avoid short-termism) nor too long (avoid "capture" and

lack of new ideas), and ideally the appointees will have staggered terms to enable continuity and minimize disruption.

- the Governing Body should be mixed representatives from all the key stakeholders – employees, plan sponsor(s) and current beneficiaries; there should be no controlling stakeholder, although the balance may vary somewhat depending on the maturity of the fund.
- the Governing Body should have relevant experience and the necessary skills and abilities for their position. This criteria is not assessed in terms of being accountants, lawyers, fund managers or actuaries – although the existence of professional qualifications and/or in-house professional advice evidences that the Governing body has access to appropriate skills – but rather in terms of understanding pension fund dynamics, having financial awareness and an appreciation of investment matters, and the ability to discriminate good advice from bad advice.
- the Governing Body clearly states its investment policies in its investment policy manual, including its risk management policies, processes, procedures, and approvals; such investment policies are made available to stakeholders. Investment decisions are made by the Governing Body and are not inappropriately influenced by any single stakeholder nor are strategic asset allocation decisions left to the Investment Managers; asset-allocation decisions and Investment Management mandates are made with a view to matching its future pension obligations at the minimum level of risk rather than meeting external and unwarranted bench marks
- the Governing Body provides regular, comprehensive and transparent disclosure of the pension fund's financial and solvency position and underlying assumptions used in determining that position.

The Analyst is entitled, though not required, to assess the Governing Body as a score out of 6 points:

- if the desired feature is evidenced → score 0.5 points
- if the desired feature is evidenced and considered a strong risk control feature of the pension fund by the Analyst → score 1.0 point.
- Sum the points; if the total is 0.5, 1.5, 2.5, 3.5, 4.5 or 5.5 the Analyst should round up or down to the nearest whole number based on their overall view of the Governing Body.
- The resulting scores map to the scorecard in the following manner: 6 => Excellent, 5=> Strong, 4 => Good, 3 => Fair, 2 => Marginal, 1 or 0 => Weak.

The Analyst retains the flexibility to assign any individual fund a more appropriate individual score based on the Analyst's expert judgment if warranted by individual conditions (e.g. if the Governing Body is under investigation for fraud).

Professional Advisors: Risk Weighting 5%

The quality and role of the external Professional Advisors plays a significant role in establishing and promoting the financial stability of a pension fund. From a third party creditor perspective there are three main types of external Professional Advisors of interest:

- the Actuary – responsible for assessing the level and timing of likely future liabilities of the pension fund and for expressing these obligations in present value terms. The present value adjustment is one of the most contentious elements of managing a pension fund. The Actuary is also responsible for assessing the likelihood of the investment portfolio of achieving these requirements, often based on sector allocations and assumptions about future sector returns, and hence for setting and revising the required contributions. High quality actuaries are considered to be the big four names (i.e. Watson Wyatt, William Mercer, Bacon & Woodrow, Hymans Robertson).
- the Accountant – responsible for assessing and reporting the internal controls of the pension fund and its accounting system, and in particular reviewing the valuations of the investment portfolio including the quality and valuation of illiquid and/or term assets. High quality accountants are considered to be the big four names (i.e. PWC, E&Y, D&T, KPMG).

- the Investment Advisors (IAs) – responsible for stock selection. Stock selection should be based on minimizing risks whilst meeting the minimum return assumed by the actuaries when establishing the necessary contributions. High quality IAs can be assessed based on the Regulated Investment Advisor scorecard.

CRM consider that the higher the quality of the Advisor the lower the likelihood of both (a) inaccurate or misleading advice and (b) “capture” by any of the stakeholders which might have an undue influence on the direction of the advice. Assessment of the overall quality of the professional advisors is based on Analyst expert judgment.

Asset–Liability Management: Risk Weighting 25%

Ultimately the pension fund’s Asset–Liability Management (ALM) is intended to achieve the fund’s long term solvency i.e. ensure that the investment portfolio and future contributions are sufficient to meet the fund’s expected future obligations as and when they fall due. However the calculation of solvency is contentious and the assessment of solvency is contingent on the intended use of that measure. Whilst the reported solvency measure is useful, particularly in identifying solvency trends, in assessing the pension fund’s ALM, CRM places greater emphasis on reviewing the calculation basis of liabilities and appropriateness, riskiness and liquidity of the investment portfolio.

“The aim of defined benefit pension funds is to pay the pensions that members have been promised. Their primary objective is therefore to achieve a certain liability-related level of return. They may well have secondary objectives, too: to exceed this return, where possible, in order to reduce the costs to the employer of providing the pension or to enhance the prospect of benefit improvement; and to minimize the volatility of returns, so that the sponsor is not forced to vary contribution rates.”
Myners Report (paragraph 41, page 9)

Solvency: Risk Weighting 15%

Solvency is reviewed using published measures and should be based primarily on the PBO, if available, because this is more conservative than the ABO or VBO, and recognizes that the DBP fund is a going concern. CRM review solvency in a two step process

Are the key assumptions used in establishing the future liabilities reasonable?

CRM are not able to review the fundamental calculations behind the liabilities but instead consider two basic parameters which indicate if the liabilities figure is likely to be aggressive or conservative:

- The salary growth rate assumption: the higher the assumption the more “conservative” the liability calculation. Typical levels are 4% or ‘inflation + 2%’.
- The discount rate: the lower the rate the more conservative the liability calculation. A conservative rate is considered to be 5% to 6% or less, or the yield on AA/Aa rated corporate bonds, which essentially makes limited assumptions about investment returns. If the rate is higher, perhaps reflecting a blended rate of expected returns on an expected portfolio (e.g. UK MFR), then resulting solvency measures hinge on the fulfillment of these investment return expectations plus they assume that the actual investment portfolio reflects the expected portfolio.

Are the level and trend of the solvency measure, or funding ratio, reasonable?

A typical pension fund’s solvency is considered good if the funding ratio is not significantly less than 100%. However there are two other important considerations:

- Scheme maturity – the “maturity” of the pension fund assessed using the balance of current scheme contributors to current beneficiaries plus deferred beneficiaries. The “younger” the

scheme the less pressing the liabilities and hence the less crucial the solvency measure at the current point-in-time.

- Trend is just as important as the level. A deteriorating trend that remains unexplained or unresolved by the fund’s governing body is a key risk indicator.

Combined view over solvency

The definitions speak to solvency and trend. If the Analyst has concerns over the measurement of liabilities then the Analyst should adjust the score downwards. If the scheme is very mature and unfunded the Analyst should consider further downward adjustment. Infrequent actuarial revisions such as less frequent than every three years also merit cautious scoring.

The Analyst may also consider expected returns on assets. Whilst this return assumption has a direct role in the sponsor’s reported P&L, but no direct role in computing scheme assets or liabilities, the expected return does have a role in establishing sponsor contribution levels. If the expected return is unduly high then the sponsor is possibly not contributing a conservatively determined amount and hence scheme assets may prove insufficient to meet future liabilities as they evolve, regardless of the current solvency measure.

Solvency & Liabilities	
Excellent – Very comfortable, well above 100%, and trends indicate broad stability.	5
Strong – Comfortable, fully funded around 100%, and trends indicate broad stability.	4
Good – Potentially, but not significantly under funded (90% to 100%), and trends do not give cause for any concern; alternatively, a fund that is still comfortably funded but trends indicate an extended decline over time that remains unexplained by the Governing Body.	3
Fair – Potentially continuously under funded (70% to 90%) but stable and the fund is relatively immature with the longer term available to reverse the position; alternatively a fund with significant under funding which is being addressed and evidenced through improved trends year on year.	2
Marginal – Continuously and materially under funded (below 70%) and trends indicate ongoing weakness.	1
Weak – Materially under funded and trends evidence continued weakness over an extended period with no indication of improvement. The solvency status may be triggering a regulatory response.	0

Investments & Liquidity: Risk Weighting 10%

The investment portfolio is assessed against the expected liabilities and not, primarily, against reported benchmarks. Indeed, if the pension fund encourages its Investment Managers to focus on achieving particular benchmarks such as index returns the assets are effectively being operated as a targeted mutual fund rather than a pension fund. Similar to Solvency analysis, one key consideration is the “maturity” of the pension fund because the “younger” the scheme the less pressing the liabilities in respect of the timing of benefit cash outflows and consequently the asset pool can have lower liquidity and should have a higher duration.

Whilst it is very difficult for the Analyst to define exactly what an appropriate mix in each circumstance, the Analyst should review the asset portfolio against certain principals:

- ALM matching

- If liabilities are contractually fixed in monetary terms (e.g. the scheme is mature with significant pensions in payment) → fixed money assets such as bonds are likely to be the most appropriate asset.
- Price index-linked liabilities would be better matched by investments in real assets (e.g. property) or index linked bonds.
- If liabilities are impacted by general price levels (e.g. salaries) then real assets or equities (inflation hedge, profit linked, rising dividends etcetera) may be more appropriate.
- Asset duration should be matched to liabilities → avoids reinvestment risk (due to lower yield) or early sale capital loss (due to increased yield) → a mature fund should be invested in shorter dated assets, whereas a younger fund can be invested in equities due to their high duration.
- Diversification – generally a diversified asset pool provides better capital certainty and a more predictable source of expected returns. The assessment of diversification needs to consider, inter alia, the broad asset class (e.g. bonds, equities and cash), the mix within asset class (e.g. cyclical v growth stocks), and currencies and rates (e.g. fixed v floating).
- Quality – generally higher quality portfolios lead to better capital certainty but lower growth. The analysis can consider, inter alia, the mix of blue chips v growth stocks, OECD issuers v EMG issuers, government bonds v corporate bonds, investment grade v high yield corporate bonds etcetera.
- Valuation – the asset valuation basis and the treatment of unrealized gains: are unrealized gains being reported and relied upon.
- Speed of adjustment – many pension funds suffered weakened financial profiles during the period 2000 to 2003 by not responding quickly enough to changes in the investment environment e.g. being excessively long equities going into an equity market downturn but stubbornly sticking to the asset class.
- Hedging – an insurer that actively manages the portfolio using derivatives in an appropriate manner creates an opportunity to reduce risks, improve duration, protect its investments and lock in returns.

Investments & Liquidity	
Excellent – Very strong investment quality comprising significant levels of cash and marketable securities. No investment concentrations. ALM is very sophisticated and the assets are closely matched with the liabilities. The fixed income portfolio is dominated by high grade fixed income investments, such as treasuries, highly rated corporate and municipal credits. Below investment grade investments are insignificant. The level of equities and real assets is in keeping with the liability profile. Derivatives are sparingly used to facilitate ALM and hedge assets.	5
Strong – Sound overall investment quality comprising above average cash and marketable securities balances, invested in high quality fixed income credits, and dominated by highly rated corporate bonds, followed by treasuries and high grade municipals and equities. Below investment grade investments and investments in “alternative” asset classes are modest. ALM is at an advanced stage. Conservative use of derivatives.	4
Good – Good investment quality comprising adequate cash and marketable securities balances. Portfolio remains dominated by fixed income investments, primarily government and high grade corporate bonds, but some use of riskier asset classes, including derivatives and “alternative” assets, principally to diversify risk whilst still broadly in keeping with the expected return driven ALM objective.	3
Fair – Modest cash and marketable securities balances that provide reasonable liquidity. ALM is potentially not very developed and benchmarks may be somewhat inappropriate. Sizeable investments in equities/mortgages as percent	2

of total investments, and below investment grade bonds represent a significant portion of the total bonds. “Alternative” investments are a meaningful asset class and derivatives are actively used in what appears to be a speculative as well as hedging manner. Some evidence of investment concentrations.	
Marginal – Liquidity is poor with inadequate cash and marketable securities. ALM is poor and investment benchmarks are inappropriate compared to liabilities. Investment in equity is aggressive and not in keeping with ALM requirements. A significant portion of the fixed income portfolio is made up of below investment grade bonds, “fallen angels”, private equities and other “alternative” assets, and derivatives are used inappropriately to leverage short term trading strategies. Inappropriate investment concentrations are evident.	1
Weak – The portfolio is extremely illiquid, dominated by weaker assets, and inappropriate for ALM purposes.	0

Plan Sponsor(s): Risk Weighting 50%

The Plan Sponsor(s) is the most critical input to the rating process for a pension fund because ultimately the Plan Sponsor is responsible for ensuring that the pension fund makes good on its pension obligations. Funding segregates the assets from those of the sponsor, but the fund is still reliant on the sponsor via future contributions and which are variable depending on the extent of the funding level / solvency of the fund and the investment outlook. Whilst failure of the sponsor does not necessarily always lead to distress at the pension fund, it certainly prompts a weakening of the fund’s credit standing, and may instigate the fund’s unwind or termination and increase the probability of a distress event / distressed unwind or termination. The ability of the sponsor to maintain its current and future contribution commitments is proxied by using the sponsors’ credit rating i.e. assessing the probability of the sponsor(s) failure to maintain contributions. It is also important to assess the monetary extent of any under funding compared to the ability of the sponsor to make good on that amount. For example, if the monetary value of the under funding is significantly in excess of the market capitalization of the sponsor or the local authority’s revenue stream then, despite its current ability to service the contribution based on its credit rating, the sponsor may run into long term future difficulties in meeting the obligation.

Credit Rating: Risk Weighting 40%

The credit standing of the plan sponsor(s) is assessed by reference to its (their blended) credit rating

- the ICR should be used if one exists
- if no ICR exists then the Analyst is entitled to use the lowest available ECAI rating (see also **Global Credit Policy Manual, Section 3.4.12 External Credit Assessment Institutions**).
- if no ICR or ECAI rating exists the Analyst should establish an appropriate rating; this ratings assessment need not be fully documented although the Analyst should briefly explain the choice of rating in the pension fund’s written credit review.
- For industry wide/sector/professional association or other multi-sponsor plans the Analyst is entitled to estimate a blended view over the credit standing of the relevant sponsors and provide reasonable justification

Credit Rating	
Excellent – Investment Grade (iAAA to iBBB-)	5
Strong – iBB range	4
Good – iB+/iB	3
Fair – iB/iB-	2
Marginal – iCCC	1

Under Funding Burden: Risk Weighting 10%

There is likely to be longer term correlation between the extent of a pension fund's monetary under funding and the Plan Sponsors' credit rating, but the credit rating may not incorporate the full extent of the future pension problems particularly if the sponsor has the legal right to terminate its commitment to the plan and walk away from the burden. This option is more likely to be exercised if the fund is significantly under funded and the sponsor financially vulnerable.

The Analyst should consider the size of the under funding, as well as the overall size of the fund and the ongoing contribution burden, to the most appropriate metrics of the sponsor e.g. revenues, assets, free cash flow, market capitalization etcetera.

Under Funding Burden	
Excellent – Fully funded	5
Strong – Monetary under funding trivial compared to sponsor resources	4
Good – Monetary under funding comfortable compared to sponsor resources	3
Fair – Monetary under funding material compared to sponsor resources	2
Marginal – Monetary under funding challenging compared to sponsor resources	1
Weak – Monetary value of under funding significantly in excess of longer term financial resources of the sponsor.	0

Internal Facility Rating

Introduction

The IFR for a Counterparty using the Pension Fund Scorecard is assigned using the Ratings Driver Based Approach, Financial Institutions Form. This approach consists of increasing or decreasing the Base Reference Recovery Rate (BRRR, stated as a percentage value) by the cumulative percentage points (%pts) impact of the following IFR Ratings Drivers – the Jurisdiction Adjustment, an adjustment for residual asset values (Asset Evaluation), an adjustment for the likely Regulatory Response (if any), an adjustment for the relevant Seniority and Cushion, and the Complexity Adjustment – to determine the Proposed IFR by reference to the standard IFR Conversion Table.

The Base Reference Recovery Rate, the Jurisdiction Adjustment, the Complexity Adjustment, the Cushion and the IFR Conversion Table are further discussed in Appendix 14. This current Appendix covers the adjustments for asset values (Asset Evaluation), Regulatory Response and Seniority.

Asset Evaluation

Industry Distress

Industry membership in itself is not considered to be a primary driver of recovery rates. However, ceteris paribus, if an Industry is considered to be in distress then CRM believe this is likely to result in lower Industry wide recovery rates than otherwise expected (compared to the BRRR). Industry distress for Pension Funds is initially proxied by reference to the "Regulatory Environment" score in the ICR Ratings Driver section: the weaker the external Regulatory Controls the more likely the industry is likely to be distressed

Industry Distress	
ICR Regulatory Environment	Adjustment to BRRR
Excellent, Strong, Good, Fair	No Adjustment
Marginal	-5%pts
Weak	-10%pts

However, in order to reflect any other feature of the external environment that is not adequately reflected under the ICR section, the Analyst is entitled to reduce, but not increase, the score obtained from the ICR section based on Expert Judgment.

Residual Asset Value

The bulk of assets held at Pension Funds are a portfolio of financial assets and real/physical investment assets. Portfolio Theory indicates that the more diversified the assets and the higher the quality of the individual assets, the greater the expected value of those assets in future time periods i.e. the higher the residual value. Because the probability of default of a Pension Fund is also driven, at least in part, by the ongoing performance of its financial assets, there is also a partial correlation between the probability of default and the recoveries in the event of default. Residual Asset Value is therefore proxied by reference to the Investments & Liquidity score in the ICR Ratings Driver section. CRM believe that this driver is extremely important in systematically estimating the recoveries pertaining to Pension Funds, and Analysts attribute a substantial increase in the recovery rate based on their view over Investments & Liquidity.

Residual Asset Value	
ICR Investments & Liquidity	Adjustment to BRRR
Excellent	+25%pts
Strong	+15%pts
Good	+5%pts
Fair	No Adjustment
Marginal	-3%pts
Weak	-5%pts

Regulatory Response

Pension Funds are often subject to significant Regulatory interest to ensure going concern status. However if a Pension Fund enters a distressed state the analysis switches to identifying whether or not that host country operates a Pension Guarantee structure that is able and willing to assume the Pension Fund's assets and liabilities. In these situations CRM believes that third party creditors benefit from this structure in-so-far as trading positions will continue to be managed to the benefit of the fund, or terminated in the proper manner if the new manager does not consider those trades suitable to meeting its newly defined financial objectives. However, this procedure is not certain and hence CRM will only credit Pension Funds benefiting from those arrangements to the extent of an additional +10%pts. In jurisdictions where there is no such structure, or the structure may be unable or unwilling to assume the distressed fund's assets and liabilities, no such adjustment is warranted.

Pension Funds that benefit from such a safety net are also considered likely to reach work out resolution in a relatively short space of time compared to funds which do not so benefit. Therefore the Analyst is entitled, though not required, to assign such funds "Complexity = Low" regardless of the inherent complexity of the Counterparty.

Seniority

Seniority speaks to the level of an individual Facility in the priority of payments ordering in the event of a breakup, assuming that the absolute priority rule holds. If the Analyst has any reason to believe that the absolute priority rule will not hold then the Facility should be assigned to a lower, more appropriate, Seniority level. Whilst CRM do not believe that it is always certain that a senior creditor would be subordinated to pension beneficiaries, this is the most conservative approach to establishing recovery rates. Pension Funds are defaulted to Senior Unsecured status. Whilst available for selection, subordinated trading with a Pension Fund is highly unusual. It is extremely rare to benefit from non-eligible collateral when dealing with Pension Funds and therefore no “Senior Secured” status is available for selection; if any Lehman Brothers Facilities have such a status then the Analyst should use the Override functionality to record the appropriate IFR.

Seniority	
	Adjustment to BRRR
Senior Unsecured	No adjustment
Subordinated	-20%pts

Appendix 13 – Collective Investment Schemes

Definition

<Outstanding>

Appendix 14 – Common IFR Drivers

Introduction

This Appendix documents those items considered common to more than one Industry Class. The IFR Conversion Table is used by both the Ratings Driver Based Approach and the Pooled Approach. The Ratings Driver Based Approach, Corporate Form and Financial Institutions Form also share the same Base Reference Recovery Rate, the Jurisdiction Adjustment, and the Cushion Drivers, and whilst the Complexity Adjustment differs in the detail, the basic approach is consistent between the two Forms.

IFR Conversion Table

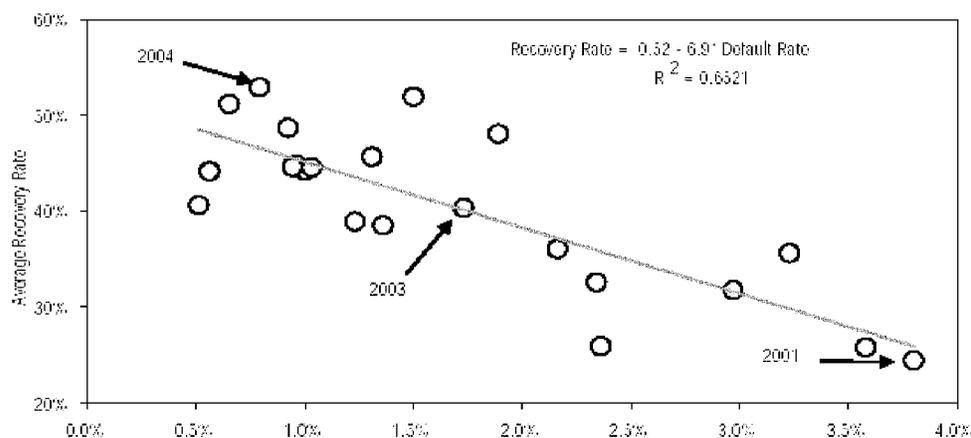
IFR	Expected Recovery Rate %	
	>	<=
i1	85	100
i2	75	85
i3	65	75
i4	55	65
i5	45	55
i6	35	45
i7	25	35
i8	15	25
i9	5	15
i10	0	5
iNRR	N/A	N/A

See also **Global Credit Policy Manual**.

Base Reference Recovery Rate

The Base Reference Recovery Rate for the Corporate Form and the Financial Institutions Form is set at 35% and reflects the expected recoveries accruing to a US corporate at the senior unsecured level in a relatively high default rate environment. This is based on a 2005 Moody's paper "Default & Recovery Rates of Corporate Bond Issuers, 1920-2004".

Exhibit 10 – Correlation between Recovery Rates and Annual Default Rates, 1983-2004



Jurisdiction Adjustment

The Jurisdiction Adjustment Driver for the Corporate Form and the Financial Institutions Form captures the difference in expected recovery rates due to the relative debtor or creditor friendliness of the relevant jurisdiction in a Counterparty's workout procedure. Generally speaking, the more creditor friendly the legal regime and procedures followed during the workout procedure, the higher the recovery rights accruing to creditors. Creditor friendliness is usually judged using factors such as whether courts recognize and enforce private contracts, whether security can be identified, taken and enforced in a timely manner, whether the absolute priority rule holds, and whether or not the incumbent management remains in place during – and can influence – the workout process and residual asset values. This assessment has to consider not only whether creditor friendly features exist, but also the extent to which a creditor can be certain that these features will apply in any given situation including when the creditor and debtor reside in different jurisdictions.

Lehman Brother's approach is based on generating a high level expectation of differences in recovery rates based on comparing generic jurisdictional features for performing Counterparties. For Counterparties at or near to default (i.e. those rated iD) the individual situation of the Counterparty will be assessed including, inter alia, the causes of distress and the political situation in the jurisdiction, the likely trigger into default (e.g. failure to pay, bankruptcy), the likely workout route (e.g. refinancing, breakup) and the legal regime of the governing documentation, each of which will have an impact on the expected recoveries for an overseas creditor. In order to generate a high level expectation Lehman Brothers has combined two external data sources.

Legal Rights Index (LRI) – published by the World Bank and available on <http://www.doingbusiness.org/ExploreTopics/GettingCredit/CompareAll.aspx>. Each Jurisdiction is assigned a score based on the presence of a particular feature (see box).

The index measures the degree to which collateral and bankruptcy laws facilitate lending. It is based on data collected through research of collateral and insolvency laws supported by the responses to the survey on secured transactions laws. It includes three aspects related to legal rights in bankruptcy, and seven aspects found in collateral law. The indicators related to creditor rights in bankruptcy are based on the methodology of La Porta and others (1998). A score of 1 is assigned for each of the following features of the laws:

- Secured creditors are able to seize their collateral when a debtor enters reorganization—that is, there is no "automatic stay" or "asset freeze" imposed by the court.
- Secured creditors are paid first out of the proceeds from liquidating a bankrupt firm, as opposed to other parties, such as government or workers.
- Management does not stay in reorganization. An administrator is responsible for managing the business during reorganization, rather than the management of the bankrupt debtor.

- General—rather than specific—description of assets is permitted in collateral agreements.
- General—rather than specific—description of debt is permitted in collateral agreements.
- Any legal or natural person may grant or take security.
- A unified registry including charges over movable property operates.
- Security provides priority outside of bankruptcy.
- Parties may agree on enforcement procedures by contract.
- Creditors may both seize and sell collateral out of court.

The index ranges from 0 to 10, with higher scores indicating that collateral and bankruptcy laws are better designed to expand access to credit.

Legal Certainty Index (LCI) – the presence of a particular creditor friendly feature in the jurisdiction does not necessarily mean that foreign creditors will benefit from that feature. CRM adjust the Jurisdictions Legal Rights Index but using a Legal Certainty Index published by WMRC (World Markets Research Centre – reference Sovereign Risk Team). This index rates each Jurisdiction on a 1 to 5 scale with 1 representing the most certainty and 5 representing no certainty.

The procedure for combining these two indexes used is as follows

A. convert the LCI into a percentage thus: $LCI\% = (100\% - 25\%*(LRI - 1))$. This reflects the extremes of 1 = 100% and 5 = 0%.

B. multiply the LRI by the LCI% to obtain the adjusted LRI (label as LRI*).

This simplistic calculation attempts to capture the relative reliability that a foreign creditor can place in the creditor friendliness of any given jurisdiction.

In order to calculate the relative impact on the BRRR we first need to compare the Adjusted Creditor Rights index to a set of standardized recovery rates per jurisdiction. The recovery rates (RR) used are those reported by the World Bank and derived from a standardized problem posed to local law firms and available from <http://www.doingbusiness.org/ExploreTopics/ClosingBusiness/CompareAll.aspx>. Whilst these recovery rates are unsuitable for our wider analysis, they are a useful for computing the Jurisdiction Adjustment.

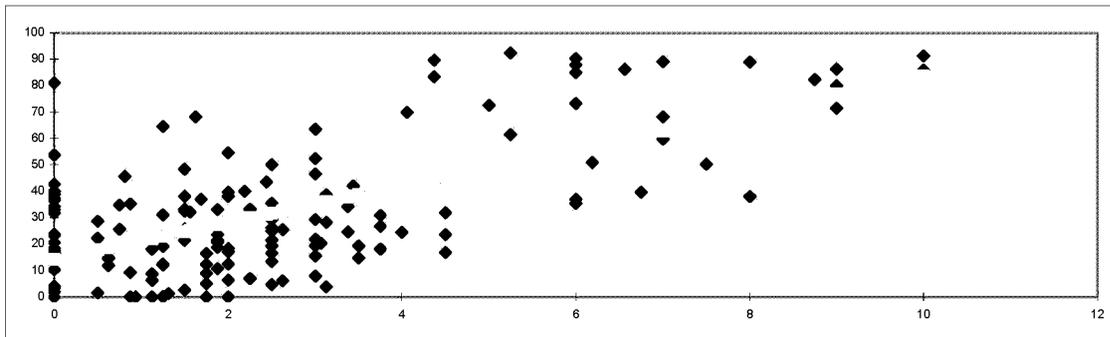
The following procedure has then been used to determine the Jurisdiction Adjustment item

1. regress the LRI* against the standardized recovery rates (to establish the relationship exists)
2. re-estimate each jurisdictions' recovery rate to obtain respective expected recovery rates (label as RR*) using the LRI* and the coefficients from the regression (to smooth the data)
3. rescale these recovery rates to the BRRR to reflect the adjustment required to our US high default rate base case (i.e. set the US RR* to 35% and adjust the other RR* by the same factor; label as RR**)
4. identify the difference between the RR** and BRRR per each jurisdiction; this then becomes the Jurisdiction Adjustment factor (+/- %pts adjustment to the BRRR). Where the full data set is not available for particular jurisdictions an "Expert Judgment" based estimate has been used.

This approach to identifying and quantifying the relative impact of each jurisdiction's legal regime is not without its shortcomings but we believe it does provide CRM with a reasonable estimate. For the purposes of this adjustment the relevant jurisdiction is identified as the physical residence.

<i>Regression Statistics</i>	
Multiple R	0.655976992
R Square	0.430305814
Adjusted R Square	0.426321939
Standard Error	19.16077165
Observations	145

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	14.29740046	2.371939948	6.027724467	1.34538E-08
X Variable 1	6.933534566	0.66714303	10.39287568	3.39729E-19



Source	World Bank Recovery Rate (cents on the dollar)	World Bank Creditor Rights Index (LRI)	WRMC	Country	active_counterpart_ind	LRI*	RR*	RR**	Proposed %pts Adj.	Comments	Final %pts
Country			Certainty of Process Index (LCI)								
Albania	24.5	3	2.5	3.375	ANDORRA	Y	#N/A	#N/A	#N/A	#N/A	-15
Algeria	37	3	2.75	1.8875	ANTIGUA AND BARBUDA	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Angola	1.2	3	3.25	1.3125	ARGENTINA	Y	1.3125	23	13	-22	-22
Argentina	23.5	3	3.25	1.3125	ARMENIA	Y	2	28	16	-19	-19
Armenia	38.8	4	3	2	ARUBA	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Australia	80	4	1	9	AUSTRIA	Y	77	43	7	8	8
Austria	72.5	5	1	5	AUSTRIA	Y	5	49	27	-8	-8
Azerbaijan	23.2	6	3.5	2.25	BAHAMAS	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Bangladesh	23.2	0	3.25	0	BAHRAIN	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Belarus	11.9	5	4.5	0.825	BARBADOS	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Belgium	86.2	7	1.25	6.5625	BELGIUM	Y	6.5625	60	33	-2	-2
Benin	9.6	4	3.25	1.75	BERMUDA	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Bhutan	0	0	2.75	0	BRAZIL	Y	1.25	23	13	-22	-22
Bolivia	32.5	3	3	1.5	CANADA	Y	7	63	35	0	0
Bosnia and Herzegovina	32.1	5	3.75	1.5625	CAYMAN ISLANDS	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Botswana	50.9	9	2.25	6.1875	CZECH REPUBLIC	Y	3.5	39	21	-14	-14
Brazil	0.2	2	2.5	1.25	CHINA	Y	0.875	20	11	-24	-24
Bulgaria	34.2	6	2.75	3.375	COLOMBIA	Y	2	28	16	-19	-19
Burkina Faso	8.4	4	3	2	COSTA RICA	Y	3	35	20	-15	-15
Burundi	16.4	0	4.25	0	COTE D'IVOIRE	Y	0.625	19	10	-25	-25
Cambodia	0	4	3.25	1.75	CROATIA	Y	2.5	32	18	-17	-17
Cameroon	21.4	4	3.5	1.5	CYPRUS	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Canada	89.1	7	1	7	CZECH REPUBLIC	Y	4.5	45	25	-10	-10
Central African Republic	0	3	3.5	1.125	DENMARK	Y	7	63	35	0	0
Chad	0	3	3.75	0.8375	ECUADOR	Y	1.125	22	12	-23	-23
Chile	19.3	4	1.5	6.1875	EGYPT	Y	0	14	8	-27	-27
China	35.2	2	3.25	0.875	EL SALVADOR	Y	2.5	32	18	-17	-17
Colombia	54.6	4	3	2	FINLAND	Y	6	56	31	-4	-4
Congo, Dem. Rep.	1.9	3	1.9	5	FRANCE	Y	3	35	20	-15	-15
Congo, Rep.	10.3	3	5	0	GERMANY	Y	2	68	37	2	2
Costa Rica	15.5	4	2	3	GIBRALTAR	Y	#N/A	#N/A	#N/A	use UK +12	12
Cote d'Ivoire	14.8	2	3.75	0.625	GREECE	Y	0.8125	20	11	-24	-24
Croatia	21.4	4	2.5	4.5	GUAM	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Czech Republic	16.8	6	2	4.5	GUATEMALA	Y	2.5	29	16	-19	-19
Denmark	59.8	7	1	7	GUERNSEY, C.I.	Y	#N/A	#N/A	#N/A	use UK +12	12
Dominican Republic	17.1	4	3	2	HAITI	Y	0.5	18	10	-25	-25
Ecuador	19.1	3	3.5	1.125	HONG KONG	Y	7	63	35	0	0
Egypt, Arab Rep.	18.4	0	3.5	0	HUNGARY	Y	4.0	37	22	-13	-13
El Salvador	24.9	5	3	2.5	ICELAND	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Estonia	40	5	1.75	2.8	INDONESIA	Y	1.875	27	15	-20	-20
Ethiopia	40	5	3.25	2.1875	IRELAND	Y	4	70	39	4	4
Fiji	20.5	0	3	0	ISLE OF MAN	Y	#N/A	#N/A	#N/A	use UK +12	12
Finland	90.2	6	1	6	ISRAEL	Y	8	70	39	4	4
France	46.8	3	1	3	ITALY	Y	2.4375	31	17	-19	-19
Georgia	20.3	7	3.25	3.0625	JAMAICA	Y	20	35	20	-15	-15
Germany	50.3	8	1.25	7.5	JAPAN	Y	5.25	51	28	-7	-7
Ghana	25.4	3	2.5	3.125	JERSEY, C.I.	Y	#N/A	#N/A	#N/A	use UK +12	12
Greece	45.6	1	1.75	0.8125	KAZAKHSTAN	Y	2.5	32	18	-17	-17
Guatemala	18.3	4	3	2	KOREA	Y	0	14	8	-27	-27
Guinea	22.2	2	4	0.5	KUWAIT	Y	3.125	36	20	-15	-15
Haiti	1.5	4	1.5	4.5	LEBANON	Y	2.5	32	18	-17	-17
Honduras	21.5	3	2.5	3	LIBERIA	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Hong Kong, China	82.3	10	1.5	8.75	LIECHTENSTEIN	Y	#N/A	#N/A	#N/A	use Switzerland-4	-4
Hungary	30.9	2	3.75	0.5	LUXEMBOURG	Y	#N/A	#N/A	#N/A	use Belgium-2	-2
India	12.5	4	3	2	MACAU	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Indonesia	10.6	5	3.5	1.875	MALAYSIA	Y	6	56	31	-4	-4
Iran, Islamic Rep.	18.1	5	4	1.25	MEXICO	Y	1.25	23	13	-22	-22
Ireland	89.9	8	0	8	MONACO	Y	#N/A	#N/A	#N/A	use France -15	-15
Israel	38	1	8	8	NETHERLANDS	Y	9	77	43	8	8
Italy	43.5	3	1.75	2.4375	NEW ZEALAND	Y	9	77	43	8	8
Jamaica	62.5	6	3	3	NORWAY	Y	6	56	31	-4	-4
Japan	62.4	8	1.5	5.25	OMAN	Y	1.875	27	15	-20	-20
Jordan	26.7	6	2.5	3.75	PANAMA	Y	3.75	40	22	-13	-13
Kazakhstan	13.4	5	3	2.5	PARAGUAY	Y	1.125	22	12	-23	-23
Kenya	14.7	4	3.25	3.5	PERU	Y	1.25	23	13	-22	-22
Kiribati	36.7	0	3	0	PHILIPPINES	Y	3.125	36	20	-15	-15
Korea, Rep.	81.1	6	5	0	POLAND	Y	1.625	26	14	-21	-21
Kuwait	38.7	5	2.5	3.125	PORTUGAL	Y	4.0625	42	24	-11	-11
Kyrgyz Republic	24.4	3	3	4	PUERTO RICO COMMONWEALTH OF	Y	4.2	43	24	-11	-11
Lao PDR	0	2	3.25	0.875	QATAR	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Latvia	85	8	2	6	REPUBLIC OF ITALY	Y	1.85	28	15	-20	-20
Lebanon	19.3	4	2.5	2.5	REUNION	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Lesotho	33	0	2.5	0	ROMANIA	Y	2.25	30	17	-18	-18
Lithuania	52.4	4	2	3	RUSSIAN FEDERATION	Y	1.5	25	14	-21	-21
Macedonia, FYR	7.9	6	3	3	SAINT KITTS AND NEVIS	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Madagascar	0	4	0	2	SAINT LUCIA	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Malawi	17.6	0	3	0	SAN MARINO	Y	#N/A	#N/A	#N/A	use Italy +18	18
Malaysia	35.4	8	2	6	SAUDI ARABIA	Y	0	14	8	-27	-27
Maldives	17.1	0	1.125	0	SINGAPORE	Y	10	84	47	12	12
Mali	6.3	3	3.5	1.125	SLOVAKIA	Y	5.4	52	29	-6	-6
Marshall Islands	4	0	5	0	SLOVENIA	Y	4.5	45	25	-10	-10
Mauritania	6.1	7	3.5	2.625	SOUTH AFRICA	Y	4.5	45	25	-10	-10
Mexico	64.5	6	2.5	1.25	SPAIN	Y	4.5	45	25	-10	-10
Micronesia, Fed. Sts.	3.4	0	5	0	SWEDEN	Y	6	56	31	-4	-4
Moldova	29.3	6	3	3	SWITZERLAND	Y	6	56	31	-4	-4
Mongolia	16.5	3	3	2.5	TAIWAN	Y	3.5	39	21	-14	-14
Morocco	34.8	2	3.5	0.75	THAILAND	Y	3.4375	38	21	-14	-14
Mozambique	12.3	4	3.25	1.75	TURKEY	Y	0.75	19	11	-24	-24
Namibia	53.7	0	2	0	TURKS AND CAICOS ISLANDS	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Nepal	25.0	4	3.5	1.5	UNITED ARAB EMIRATES	Y	2.5	32	18	-17	-17
Netherlands	86.2	9	1	9	UNITED KINGDOM	Y	10	84	47	12	12
New Zealand	71.4	9	1	9	UNITED STATES	Y	7	63	35	0	0
Nicaragua	36.1	4	3	2	URUGUAY	Y	3	35	20	-15	-15
Niger	2.6	4	3.5	1.5	VANUATU	Y	0	14	8	-27	-27
Nigeria	33.2	8	4.25	1.5	VENEZUELA	Y	1.75	26	15	-20	-20
Norway	87.9	6	1	6	Viet Nam	Y	1.4	25	13	-22	-22
Oman	23.6	3	2.5	1.875	VIRGIN ISLANDS, BRITISH	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Pakistan	38.1	4	3.5	1.5	VIRGIN ISLANDS, U.S.	Y	#N/A	#N/A	#N/A	set as lowest-27	-27
Palau	3.5	0	5	0							
Panama	18.2	6	2.5	3.75							
Papua New Guinea	34.2	0	2.75	0							
Paraguay	8.7	3	3.5	1.125							
Peru	31.1	2	2.5	1.25							
Philippines	19.5	5	2.5	3.125							
Poland	66.2	2	1.75	1.625							
Portugal	69.9	5	1.75	4.0625							
Puerto Rico	61.4	6	1.5	5.25							
Romania	8.9	4	2.75	2.25							
Russian Federation	48.4	3	3	1.5							
Rwanda	0	5	4	1.25							
Samoa	39.9	0	2	0							
Saudi Arabia	31.7	0	3	0							
Senegal	18.8	3	2.5	1.875							
Serbia and Montenegro	20.8	5	3.5	1.915							
Sierra Leone	12.1	4	4	1.25							
Singapore	91.3	10	1	10							
Slovak Republic	39.6	8	2	6.75							
Slovenia	23.8	6	3	4.5							
Solomon Islands	23.7	0	3	0							
South Africa	31.8	6	2	4.5							
Spain	83.4	5	1.5	4.375							
Sri Lanka	33.1	3	2.5	1.975							
Sweden	73.2	6	1	6							
Switzerland	87	6	1	6							
Syrian Arab Republic	29.2	5	3	2.5							
Taiwan, China	89.6	5	1.5	4.375							
Tanzania	21.3	5	3.5	1.875							
Thailand	42	5	2.25	3.4375							
Togo	14.5	2	3.75	0.625							
Tonga	37.3	0	2.75	0							
Tunisia	50.1	4	2.5	2.5							
Turkey	25.7	1	2	0.75							
Uganda	36.5	5	3	2.5							
Ukraine	25.5	6	3.25	2.625							
United Arab Emirates	4.7	4	2.5	2.5							
United Kingdom	85.0	10	1	10							
United States	86.2	7	1	7							
Uruguay	21.9	4	2	3							
Uzbekistan	12.5	5	4	1.25							
Vanuatu	42.6	0	2.75	0							
Venezuela	4.9	4	3.25	1.75							
Vietnam	16.4	4									

Within the Corporate Form and the Financial Institutions Form the Seniority & Security score per Facility is adjusted based on the Facility's relative position in the Counterparty's Liability structure. For example, Senior Unsecured has different implications for a Facility's recovery rate depending on whether the Counterparty has significant equity and subordinated debt and no senior secured debt, compared to a Counterparty which is highly leveraged based on giving security interests in its assets to a relatively large body of Senior Secured lenders. The Cushion Driver makes an adjustment for extremes and is defined (using monetary values as inputs) as:

(Creditors subordinated to Lehman's Class + Shareholder Equity) / Total Assets

Cushion	
	Adjustment to BRRR:
> 75%	+10%pts
50% to 75%	+5%pts
15% to 50%	No Adjustment
< 15%	-5%pts

Complexity Adjustment

The Complexity Adjustment is not computed as an adjustment to the BRRR. Instead, once the BRRR has been adjusted for all other Drivers, the resulting Proposed Recovery Rate value is revised downwards depending on the Analyst's view over the likely complexity of the workout process.

The components of the Proposed Recovery Value are based on recovery rates expected shortly after default. Moody's (2005) "Bond Prices at Default and at Emergence from Bankruptcy for US Corporate Issuers" research indicates that investors that hold bonds from default to emergence earn a rate of return that is similar to the return on the single-B index (Moody's quote 12%), and that the 30 day post default bond price is approximately the present value of the bond price at emergence. Therefore our Proposed Recovery Value can already be interpreted to represent the present value of the ultimate workout, which is consistent with the workings of an efficient bond market. However CRM recognizes that some workouts might take longer than others possibly implying lower present values, and CRM conservatively adjust our Proposed Recovery Rates down for more complicated bankruptcy resolutions. The Complexity Adjustment represents the Analyst's view over the likely complexity of the workout process. For the purposes of establishing the complexity input CRM assumes a break up will take place. A more complex break up will involve higher costs of resolution and a longer time period to complete.

The choice over the appropriate discount rate is not unanimous across the industry but CRM consider 12% to be a reasonable and conservative proposition. The Moody's paper covered workouts with both an average number and median number of days between initial default and bankruptcy resolution of noticeably less than two years.

The time taken to reach final resolution for Financial Institution bankruptcies tends to show significant variation, from immediate assumption by a trade buyer to multi-year drawn out court based procedures based on complex deal documentation and difficulties in following cash movements and tracking down assets. Generally, workouts for Financial Institutions tend to take longer than for Corporates. Complexity is likely to be higher, cet par, if the Counterparty has multiple business lines and/or assets in multiple jurisdictions, the larger the financial assets and depositor or policy holder pools, multiple entities with in the Corporate structure, opaque accounting or complex financing arrangements (e.g. off balance sheet vehicles), multiple creditors at various rankings, ongoing litigation and/or material provisions. Pension Fund complexity is likely to be higher, cet par, if the Fund is large, mature and subject to significant union influence, and the sponsoring institution itself subject to a high degree of complexity in what is likely to be its own concurrent work out process. However, CRM also believe

that Broker/Dealers do not suffer from many of the complexities witnessed at other Financial Institutions and hence treat these Counterparties as per the Corporate Form (below); for example, there are typically limited (if any) depositors and/or policy holders, and balance sheets are generally marked-to-market and managed to maintain significant liquidity. The choice over assigned score is based on the Analyst's Expert Judgment.

- High – resolution expected between ten to fifteen years → multiply by 25% ($\sim 1/(1.12^{12.5})$)
- Moderate – resolution expected five to ten years → multiply by 45% ($\sim 1/(1.12^{7.5})$)
- Low – resolution expected within five years → multiply by 70% ($\sim 1/(1.12^3)$)

Analysts are entitled, though not required, to assign Banks, Insurance Companies and Pension Funds that benefit from a favorable Regulatory Response or the existence of a Pension Guarantee structure to “Complexity = Low” regardless of the inherent complexity of the Counterparty.

Corporate work outs tend to be more expedient than Financial Institutions. Again, complexity is likely to be higher, cet par, if the Counterparty has multiple business lines and/or assets in multiple jurisdictions, multiple entities with in the Corporate structure, opaque accounting or complex financing arrangements (e.g. off balance sheet vehicles), multiple creditors at various rankings, ongoing litigation and/or material provisions (e.g. environmental, litigation, warranties etcetera). The choice over assigned score is based on the Analyst's Expert Judgment.

- High – resolution expected within five years → multiply by 70% ($\sim 1/(1.12^3)$)
- Moderate – resolution expected between one to two years → multiply by 85% ($\sim 1/(1.12^{1.5})$)
- Low – resolution expected within one year → multiply by 95% ($\sim 1/(1.12^{0.5})$)

Appendix 15 – Reference IFR

Introduction

The Reference IFR is automatically generated per Counterparty by the Scorecard Application, and has several uses:

- A standardized measure, at the Senior Unsecured level, across Counterparties for comparative purposes; the Reference IFR is shown in search results screen as the Counterparty Level IFR
- Acts as the IFR that a Formal Support Beneficiary pulls in from its nominated Formal Support Provider; acts as the basis for the derivation of the Informal Support Beneficiary IFR
- If a new Facility is added to an existing Counterparty, and at the time of the most recent Ratings Refresh neither “All Facilities” nor “All Other Facilities” had been selected, the Reference IFR is used for Capital Reserving calculations until the Analyst next refreshes the Counterparty’s Internal Ratings.

Determination

The Reference IFR is established using the following rules

If the Counterparty has been Scored using Corporate Form or Financial Institutions Form:

- if the Counterparty has been assigned an IFR using “All Facilities” or “All Other Facilities” then the Reference IFR = that “All Facilities” or “All Other Facilities” IFR. Note that “All Facilities” or “All Other Facilities” is restricted to “Seniority = Senior Unsecured” (for SPVs “Seniority = Pari Passu with senior notes)
- if the Counterparty has not been assigned an IFR using “All Facilities” or “All Other Facilities” then
 - if the Counterparty has one or more IFRs computed using “Seniority = Senior Unsecured” then the Reference IFR = the “worst of” the Final IFRs.
 - if the Counterparty has no IFRs computed using “Seniority = Senior Unsecured” then the Scorecard Application will compute and show an appropriate value based on the following rules
 - Create new Facility section (not displayed) with “Seniority = Senior Unsecured”
 - Set the accompanying Cushion in the following manner and in sequential order: (a) set equal to Cushion value assigned to “Seniority = Subordinated” (if more than one value take the highest) (b) or else set the Cushion equal to one value lower than the nearest next more senior facility.

If the Counterparty has been Scored using Fund Form:

- If the Counterparty has a single IFR then Reference IFR = Final IFR
- If the Counterparty has multiple IFRs then Reference IFR = “worst of” Final IFR

If the Counterparty’s Ratings have been assigned using “Apply CCP”, “Treat as Misc.” or a Pooled Approach

- Reference IFR = Final IFR

Appendix 16 – CWS Industry → Default Scorecard Mapping

<u>CWS Classification</u>	<u>Default Scorecard</u>
AEROSPACE	Corporate
AGRICULTURE/FARM	Corporate
ASSET BACKED COMMERCIAL PAPER	SPV
AUTOS	Corporate
BANK HOLDING COMPANY	Bank
BROKER DEALER GENERAL	Broker/Dealer
BROKER/DEALER BROKERS BROKER	Broker/Dealer
BROKER/DEALER COMMODITIES	Broker/Dealer
BROKER/DEALER PRIMARY DEALER	Broker/Dealer
BUILDING SOCIETY	Bank
CENTRAL BANK	Misc.
CHEMICALS	Corporate
CLEARING CORP/EXCHANGE	Misc.
COLLEGES/UNIVERSITIES	Not-For-Profit
COMM. BANK-GOVERNMENT CONTROL	Bank
COMMERCIAL BANK	Bank
COMMUNICATIONS	Corporate
COMPUTERS	Corporate
CONGLOMERATE/DIVERSIFIED	Corporate
CONSTRUCTION/BUILDING PRODUCTS	Corporate
CONSUMER PRODUCTS	Corporate
COUNTRY	Sovereign
CREDIT UNIONS	Bank
DEALER GENERAL	Broker/Dealer
DEPOSIT TAKING COMPANY	Bank
DIVERSIFIED ENERGY COMPANY	Corporate
ELECTRONICS	Corporate
FEDERAL CREDIT UNIONS	Bank
FOOD/BEV/SUPERMARKET	Corporate
GENERAL MANUFACTURER	Corporate
GENERAL SERVICE COMPANY	Corporate
GLG TRADING AS AGENT	Misc.
CENTRAL GOVERNMENT DEPARTMENT	Misc.
HEALTH/PERSONAL PRODUCTS	Corporate
HEAVY EQUIPMENT	Corporate
HEDGE FUND	Hedge Fund
HEDGE FUND MANAGER	Misc.
HIGH NET WORTH INDIVIDUALS	Misc.
HOSPITALS - FOR PROFIT	Corporate
HOSPITALS - NOT FOR PROFIT	Not-For-Profit
INSURANCE BROKERS	Insurance
INSURANCE CO.-PROP/CASUALTY	Insurance
INSURANCE-LIFE/HEALTH	Insurance
INTERCOMPANY ACCOUNTS	Misc.
INVESTMENT ADVISOR	Regulated Investment Advisor
INVESTMENT HOLDINGS	Not Defined
ISLAMIC BANK	Bank
JAPANESE TRADING HOUSE	Misc.
LEASING	Corporate
LEHMAN SPECIAL PURPOSE VECHICL	LSPV
LEISURE	Corporate
MEDIA	Corporate
MERCHANT BANK	Bank
METALS	Corporate
MINING COMPANIES	Corporate
MISC FINANCE COMPANIES	Misc.
MORTGAGE BANKER	Bank
MUNICIPAL ISSUER - REVENUE	Not-For-Profit
MUNICIPALITY - GENERAL OBLIGAT	Municipal
MUTUAL FUND	Misc. [Collective Investment Schemes]
NOT FILLED IN BY THE ANALYST	Not Defined
OIL/GAS COMPANY	Corporate
OTHER NOT-FOR-PROFITS-501(c)3	Not-For-Profit
PERSONAL HOLDING COMPANY	Misc.
PLANTATIONS	Corporate
PULP/PAPER/PACKAGING CONTAINER	Corporate
PRIVATE EQUITY FUNDS	Misc.
REAL ESTATE	Misc.
REAL ESTATE INVESTMENT TRUST	Misc.
RETAILING (NON-FOOD)	Corporate
RETIREMENT/PENSION FUNDS-PRIV	Pension Funds
RETIREMENT/PENSION FUNDS-PUB	Pension Funds
SAVINGS AND LOAN	Bank
SAVINGS BANKS	Bank
SHIPPING	Corporate
SPECIAL PURPOSE VEHICLE	SPV
SS THRIFTS	Bank
SUPRANATIONALS - MULTI GOVT	Misc.
TELECOMMUNICATIONS	Corporate
TEXTILE	Corporate
THRIFT CONSERVATORSHIP	Bank
TRADING COMPANY - GENERAL	Misc.
TRANSPORTATION	Corporate
UTILITY - MUNICIPAL	Not-For-Profit
UTILITY-INVESTOR OWNED & IND	Corporate