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Addendum 1 to the CRI Technical Report (Version: 2013, Update 2b)

This document updates the Technical Report (Version: 2013, Update 2b) and details (1) the changes in financial statement priority rules for Australia, South-Korea, (2) changes to the winsorization for market- to-book ratio (3) some changes to the monthly calibration for the Emerging Markets Group, (4) a reclassification of default events in Thailand and (5) a replacement for the stock index in Jordan. These changes have been implemented as of the probabilities of default (PD) released on 12th of October.

I. Changes to financial statement priority rule

As documented in Subsection 3.1 of Technical Report Version: 2013, update 2b, data provided by Bloomberg's Back Office Product can include numerous versions of financial statements within the same period. If there are multiple financial statements with the same period end, priority rules must be followed in order to determine which to use. The formulation and implementation of these rules are major challenges and areas of continuing development.

In general, the first rule is to prioritize by consolidated/unconsolidated status. This status is relevant only to firms in India, Japan, South Korea and Taiwan, so this rule is only relevant in those economies. Most firms in these economies issue unconsolidated financial statements more frequently than consolidated ones, so these are given higher priority. This simple prioritization can, however, lead to cases where the financial statements used switch from consolidated statements to unconsolidated statements and back again. More specifically, in South Korea, where corporate structures are biased toward large holding companies, the effect of this switching means that the DTD calculation is not meaningful for these holding companies. Therefore, as of October 2013 calibration, in South Korea, if a company has released at least one consolidated FS over the last 12 months, all unconsolidated FS will be ignored.

If, after the first prioritization rule has been applied, there are still multiple financial statements, the second rule is applied. This is prioritization by fiscal period. In most economies, annual statements are required to be audited, whereas other fiscal periods are not necessarily audited. The order of priority from highest to lowest is, therefore: annual, semi-annual, quarterly, cumulative, and finally other fiscal periods. We have observed that the capital structure breakdown reported by Australian domiciled- banks differs between annual and semi-annual reports, leading to DTD calculations that are not meaningful. Because of this, as of October 2013 calibration, we only use data from annual financial statements for Australian banks.

II. Changes to winsorization for market-to-book ratio

As documented in Subsection 3.1 of Technical Report Version: 2013, update 2b, the volume of outliers is too large to be able to determine whether each one is valid or not, winsorization is used to apply a floor and a cap on each of the variables. The historical 0.1 percentile and 99.9 percentile for all firms in the economy are recorded for each of the ten variables. Any values that exceed these levels are set to equal these boundary values.

However, with a winsorization level and 0.1 percentile and 99.9 percentile, the boundary values still may not be reasonable. For example, NI/TA levels of nearly –25, meaning an annual net loss that is 25 times larger than the total assets of a firm, have been observed at this stage. In these cases, a more aggressive winsorization level is applied, until the boundary values are reasonable. Thus, the winsorization level is economy- and variable-specific, and will depend on the data quality for that economy and variable. Winsorization levels different from the default of 0.1 percentile and 99.9 percentile are indicated in Table A.8 of Technical Report Version: 2013, Update 2b. In addition to the special winsorization levels indicated in this table, as of October 2013 calibration; we also apply a winsorization of 0.1 and 99.5 percentile for market-to-book ratio in the Emerging Markets and Europe calibration group.

III. Changes to calibration of Emerging Markets group

As documented in subsection 3.3 of Technical Report Version: 2013, update 2b, typically all economies in the same calibration group share the same coefficients for all variables except for the benchmark risk- free rate variable. Furthermore, up until September 2013 calibration, in the Emerging Markets group, Indonesia also had its own intercept and used its own coefficients for the stock index return, CASH/TA level and Relative Size level. These coefficients were required because these characteristics for defaulting firms in Indonesia are substantially different than in other economies. Separate coefficients were required to improve the accuracy of the PD forecasts.

In October 2013, an additional 50 default events were collected for Indonesia. With these additional events, a re-assessment of the special treatment of Indonesia was called for. Based on our analysis, as of now Indonesia only uses its own coefficients for interest rate and relative size, indicating that the two variables are still significantly different compared to other economies in the Emerging Markets group. The common Emerging Markets coefficient for the CASH/TA level is now used for Indonesian companies.

IV. A reclassification of default events in Thailand

As documented in subsection 3.4 of Technical Report Version: 2013, update 2b, the CRI system distinguishes between soft and hard default events. More specifically, when a company experiences a default event, the CRI system will discontinue the PD calculation for that company. However in case of a soft default when the company remains in operation following a default, PDs will continue to be generated. In that case the company will be treated as a new company and its PDs after the default event are not affected by the financial statement or market cap data prior to the event. So, the PDs calculated are independent of the PDs that were generated before the default event. Hard defaults are default events that are typically permanent in nature (e.g. a forced liquidation) and PDs will not be computed after a default event unless there is an exceptional circumstance that warrants a manual intervention.

Previously, Rehabilitation (Thailand 1997) was classified as a hard default. As of October 2013 calibration, we have reclassified this default event as a soft default. This change is based upon the fact that Rehabilitation (Thailand 1997) was aimed at restoring the finances of important parts of the Thai economy and that many large companies that underwent such proceedings (typically stock index constituents), continued operations through to the present-day. For an updated classification of hard and soft default events please refer to Table 1 below.

Default type	Events
Hard defaults (Default events that are typically permanent)	Administration, Arrangement, Canadian CCAA, Chapter 7, Chapter 11, Chapter 15, Conservatorship, Insolvency, Japanese CRL, Judicial Management, Liquidation, Pre-Negotiated Chapter 11, Protection, Receivership, Rehabilitation, Reorganization, Restructuring, Section 304, Supreme court declaration, Winding Up, Work Out, Unknown
Soft defaults (Default events that companies can emerge from)	Coupon & Principal Payment, Coupon Payment Only, Debt Restructuring, Interest Payment, Loan Payment, Principal Payment, ADR (Japan only), Declared Sick (India only), Rehabilitation (Thailand 1997), Unknown

Table 1: Classification of default events

V. Stock Index Jordan

We have identified that an incorrect stock index was used for Jordan. As of October 2013 calibration, this error is fixed and the MSCI Jordan, a free-float weighted equity index, is used as the country's stock index.