

WHITEPAPER
NOVEMBER 2014**Solvency II and Asset Data****Authors**

Brian Heale
brian.heale@moodys.com
Senior Director, Business Development
Officer

Contact Us

For further information please contact our
customer service team:

Americas	+1.212.553.1653
Europe	+44.20.7772.5454
Asia-Pacific	+85.2.3551.3077
Japan	+81.3.5408.4100

Introduction

In 2015, insurers will begin preparatory Solvency II reporting, followed by full reporting in 2016 when they will move from the planning and testing phases of their Solvency II programs into the world of live reporting. While some insurers have undoubtedly made significant progress, most still face major challenges with their programs, as illustrated by the concerns the Prudential Regulation Authority raised in its letter on 13 June 2014.¹

One of major challenges relates to data. In particular, the AS D1 through to D6 asset Quantitative Reporting Templates (QRTs) and the asset calculations related to the Solvency Capital Requirement (SCR) require some 170 data items. Much of these data can be sourced from accounting systems, with some enrichment or transformation. However, a significant amount of these data will need to come from external sources such as investment managers and market data providers.

In this White Paper, we look at the challenges that insurers, fund managers and market data providers face in providing and aggregating the asset data required for the completion of the QRT templates and the SCR calculation.

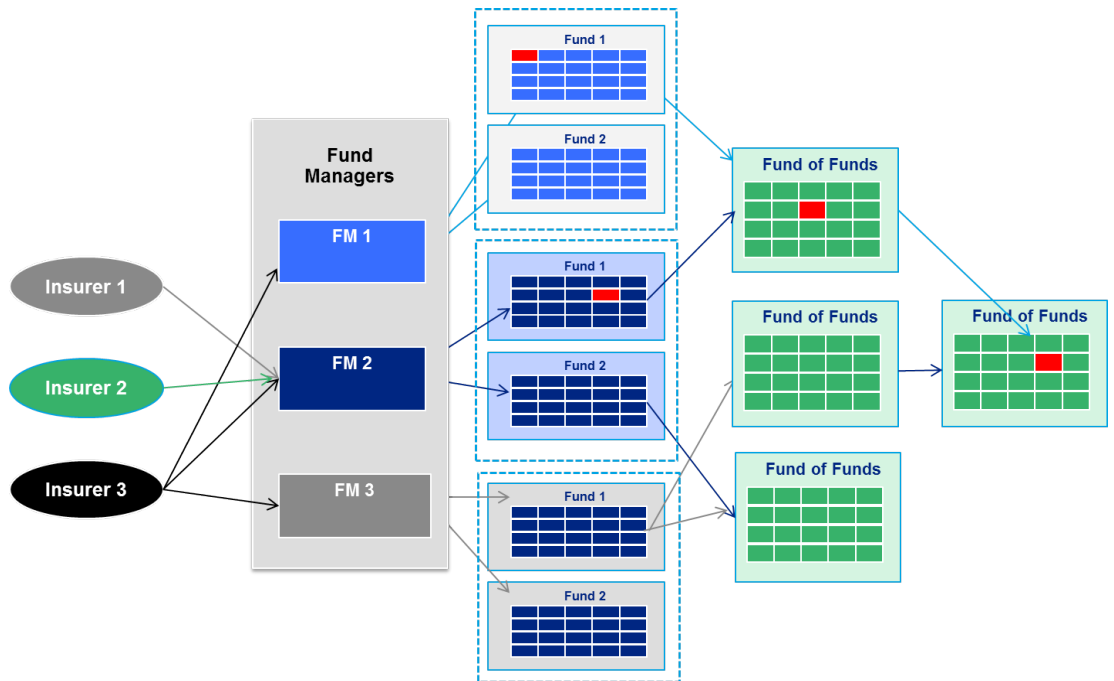
¹ <http://www.bankofengland.co.uk/pru/Documents/solvency2/insurancedirectorsupdatejune2014.pdf>.

What are the problems?

This first section summarizes the key requirements and problems that Solvency II poses with regard to asset data. While complete and accurate asset data is ultimately the responsibility of the insurer, investment managers, custodians and market data vendors all have to play their part.

	Factor	Requirement	Problems
1.	Multiplicity & Granularity of Asset Data	Insurers will need to source and store data from each of their fund managers for each asset held on a security-by-security basis.	<ul style="list-style-type: none"> » Significant challenge for insurers who hold large diverse investment pools across multiple investment managers. » This level of disclosure could reveal underlying investment strategies; hence, confidentiality is important.
2.	Data Quality	Solvency II requires all analytical data to be accurate, appropriate and complete.	<ul style="list-style-type: none"> » Ultimately, the insurer is responsible for the quality and accuracy of all analytical data – the responsibility cannot be delegated. » Insurers must have in place data governance policies, quality processes and technologies to ensure that the data accuracy requirements are met.
3.	Look-Through Capabilities	<p>Insurers must be able to look-through funds of funds and other investment structures to identify the ultimate asset. This is required for QRT AS-D4. There are two main groups of securities where look-through is effectively required: complex instruments such as structured products and collective investment vehicles (e.g., funds of funds).</p> <p>Where look-through is not possible, the fund “mandate” can be used (which creates its own problems) or Type 2 equities classification, if the fund is mainly equities.</p>	<p>Look-through presents a number of challenges to fund managers:</p> <ul style="list-style-type: none"> » It is difficult to access the underlying securities. Fund managers will need to develop new technologies to access them. It is unlikely that a single asset manager or third-party administrator will have all of the underlying data to support the level of look-through required. » There are multiple exchanges of data, which require high levels of data standardization, data licensing alterations and data transfer processes – the technology referred to in the first point will also be needed to support this. » There is the inherent structure of the data associated with the reporting counterparty and ultimate parent information of assets in investment funds, especially for fund-of-funds and fund-of-hedge funds. <p>Exhibit 1 illustrates the problem of look-through.</p>

Exhibit 1 – The challenge of look-through



	Factor	Requirement	Problems
4.	Complementary Identification Codes (CIC)	<p>EIOPA requires assets to be classified by a Complementary Identification Code (CIC) for the purposes of the QRTs. This four-character code is used to distinguish a security's country of listing and asset class in order to provide a more transparent look into an insurer's portfolio.</p> <p>EIOPA is supporting the Legal Entity Identifier (LEI) initiative and expects these to be utilised in the QRTs where available.</p>	<ul style="list-style-type: none"> » Asset managers will have to assign a CIC classification to the investments of their insurance clients. » CICs are, to a degree, ambiguous. An investment manager may be required to allocate a single asset into different CICs for different insurers, potentially leading to inconsistent treatment of an asset by insurers. » CIC mapping and maintenance over time will require significant effort, unless the process is reliably automated. » To provide consistency, the CIC is required in addition to the current European Industrial Activity Classification (NACE), Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) classifications. In theory, it must be mapped to over four million individual assets. CIC also requires an asset ID code, such as International Securities Identification Number (ISIN) or Committee on Uniform Security Identification Procedures (CUSIP). This lack of a standardized investment classification system may lead to inconsistencies.

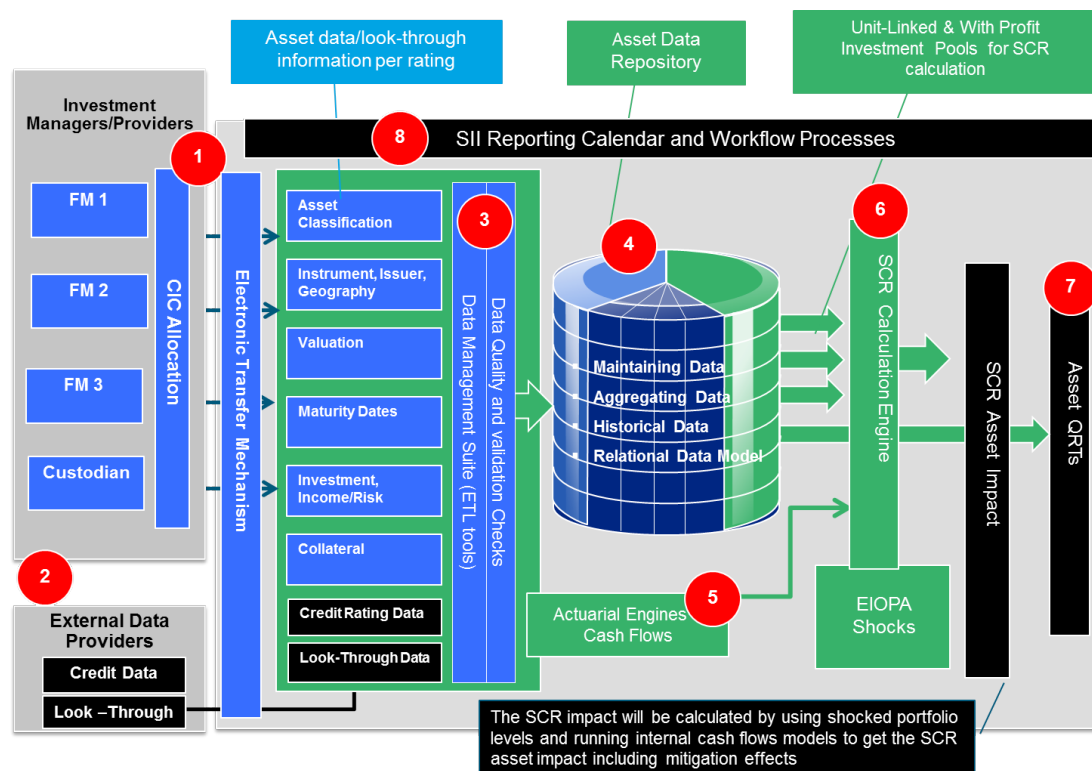
	Factor	Requirement	Problems
5.	External Market and Credit Data	Credit data must be merged with individual asset data to provide the required input to the SRC calculation.	<ul style="list-style-type: none"> » While individual securities data will come from investment managers, credit and market data will come from suppliers like Moody's, Reuters and Bloomberg. The two sets of data must be sourced by the insurer for Solvency II purposes. In particular, insurance companies need credit ratings to estimate the Credit Quality Steps (CQS), which will determine their spread risk capital charges in their fixed-income investments. » Insurers need to establish data licenses for supplying the external data that is needed in their Solvency II calculations and reporting. » EIOPA has proposed that, in cases where several ratings are available for a given credit exposure, the second-best rating should be applied. Insurers have to make sure that they have licenses to supply these data. EIOPA may tell insurers whether they could use only one rating agency in March 2015, but a final decision was not yet reached on this topic at the time of this writing.
	Data Delivery	Insurers require a significant amount of data from investment managers, custodians and data vendors.	<ul style="list-style-type: none"> » There is no common standard or model for data transmission between asset managers, custodians, data providers and insurers. Not having a standard or model increases the complexity of data consistency, governance, management and transmission. » Insurers may need to set up service-level agreements so that external data providers like asset managers deliver the required information in a timely manner, and have technology that enables a number of data exchanges.
	Asset Allocation	The capital charges set out in the Solvency II Directive rely on accurate and granular data.	<ul style="list-style-type: none"> » In some cases, capital charges may be increased if the data cannot be provided. For example, a fully defined equity attracts 39% capital charge but that charge can increase significantly if the equity is not fully defined. Insurers may decide that certain assets should not be held if the data are impractical to assemble.

As a result of these problems, insurers have to put in place new processes and technologies to collect store and aggregate asset data and place demands on their asset service providers to deliver the necessary data in the format, granularity and frequency required. Indeed, many fund managers are setting up such services for the benefits of their clients. But, asset data requirements are only part of the overall data needs for Solvency II. We will now move on to consider an insurer's asset data architecture and an equivalent fund manager's architecture.

An Insurer's Solvency II asset data architecture

Exhibit 2 illustrates what an insurer's asset data process flow/architecture might look like to meet Solvency II calculation and reporting requirements.

Exhibit 2 – Asset Data Process



1. Asset data

Insurers will look to their asset service providers, whether that is the fund manager, custodian or administrator, to support their granular and transactional asset data requirements. Identifying where within the provider's organization a particular piece of data is held, ensuring quality and providing it to the insurer in an electronic format will require development efforts. There are a number of problem areas that will also have to be considered such as look-through, valuation basis, derivative profit and loss, and data security.

Some fund managers may offer to combine credit data with asset data. In many cases, this combination will have to be undertaken within the insurer's domain. The insurer has to be able to collect and store asset data from multiple sources, transform it and make it available for several purposes. This same process is also important for other types of data required for Solvency II – namely actuarial, risk and finance data. As a result, many insurers are looking to build a data management platform to automate data processes and quality controls.

2. Credit ratings data and look-through information

Credit ratings are crucial for calculation of spread and default risk capital charges in relation to the SCR. Under the Standard Formula, the spread risk capital charge calculation depends on CQS. EIOPA has defined a mapping table to associate the ratings of external credit rating agencies to CQS and their respective capital charges as shown in the following table:

Credit Quality Step (CQS)	0	1	2	3	4	5	6
Moody's Rating	Aaa	Aa	A	Baa	Ba	Lower than Ba, unrated	
Other Rating Providers	AAA	AA	A	BBB	BB	Lower than BB, unrated	
Capital Charge	0.9%	1.1%	1.4%	2.5%	4.5%	7.5%	

The selection basis for which credit rating to utilize is likely to differ by insurer. EIOPA's guidelines indicate that, in cases where several ratings are available for a given credit exposure, the second-best rating should be applied. To avoid mechanistic reliance on external ratings, EIOPA proposes that "if an item is part of the larger or more complex exposures of the insurance or reinsurance undertaking, the undertaking shall have its own internal credit assessment of the item and allocate it to one of the seven steps in a credit quality assessment scale ('reassessment')."

Insurers that aim to automate the SCR calculation process may want to establish licenses to enable access to credit risk ratings via secure electronic data feeds, which can be fed systematically as an input into their models. In this way, insurers make sure that they have the data they need for their capital calculations and to feed into the regulatory reports they have to submit to the regulator. This process reduces both manual intervention and operational risk as the credit ratings within the entity's QRTs must be the same as the credit ratings used within the SCR calculations.

Insurers may also require historical credit ratings and economic data for the Own Risk Solvency Assessment (ORSA) Pillar II, and potentially for both regulatory and business stress tests that are likely to emerge over the next few years.

Look-through data from a fund manager or third party vendor such as Morning Star or Money Mate also needs to be available.

3. Data Quality and Extract Transform Load

Prior to being loaded in the data repository asset data has to go through a quality checking process and be "transformed" into a standardized format. Insurers will have existing Extract, Transform and Load (ETL) tools which undertake these processes and the physical load into the repository.

4. Data repository

A key piece in the data architecture for not just assets but for all Solvency II data is an analytical data repository. This repository should enable the insurer to store asset, actuarial, finance and risk data in a granular and structured manner, and undertake transformations and aggregations. The insurer can then use aggregated data to feed calculation and reporting engines as required. Data repository technologies often include data quality management tools and validation rules.

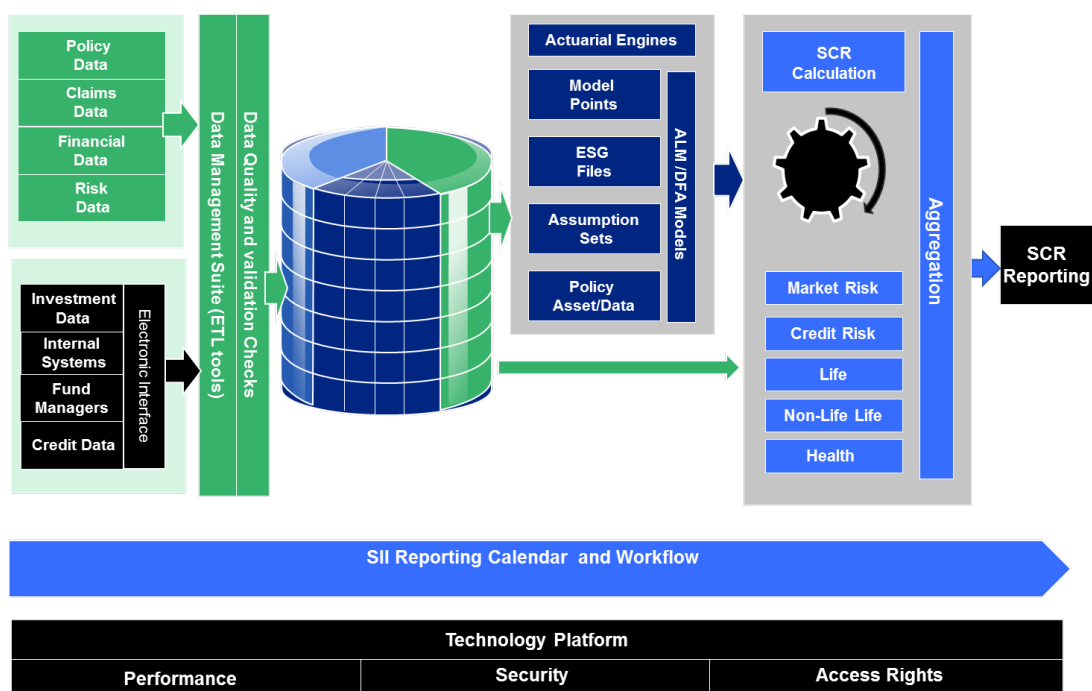
Data quality is important from both an internal and regulatory perspective. Although fund managers may provide most of the required asset data, the insurer is responsible for ensuring data quality. Indeed, insurers need to have a data quality framework and technologies that can be described in the relevant part of the insurer's ORSA.

5. Actuarial and SCR calculation engines

The asset elements of the SCR calculation require aggregated asset and associated credit data to be aggregated into with-profit and unit-linked investment pools as inputs into the SCR calculation. The SCR process inputs from an insurers actuarial engines are required.

Many insurers are looking to automate their SCR calculation process. The automation of the entire data sourcing and management process required is critical. The following diagram highlights what a SCR automated process might look like. In practice, insurers are likely to utilize a common data management architecture for all data management, calculation and reporting.

Exhibit 3 – SCR Calculation Process



6. QRTs

The final link in the chain is to populate the reporting templates (QRT templates) and render them in XBRL format for onward transmission to the regulator. Getting the data for this step, particularly the look-through of data for AS-D4 and the transactional-level data for AS D1, can be challenging.

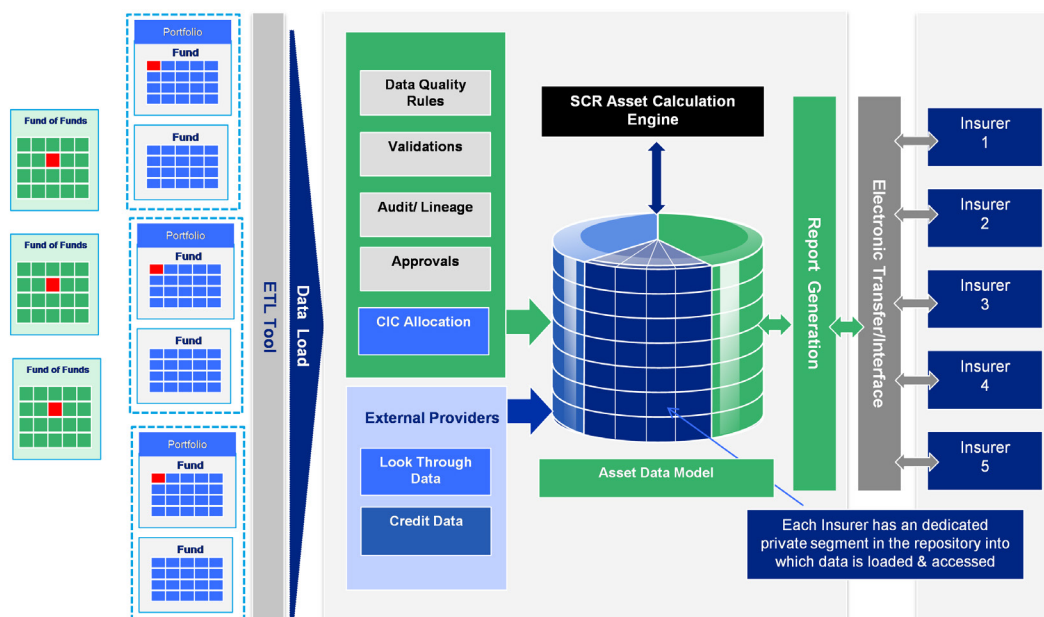
7. Reporting Calendar and Workflow

The complete process chain requires the support of workflow technology. This incorporates a reporting calendar, and the process tasks and steps, with the automation and controls for the required processes. Insurers will also have to overcome tight deadlines. After the regulation is in place, insurers will have to prepare, check and submit results in a matter of weeks after each quarter-end. The reconciliation of Solvency II disclosure with financial reporting and European Central Bank reporting requirements is likely to create further pressure, owing to concurrent and short timelines.

A Fund Manager's Solvency II asset data architecture

A fund manager's data architecture uses the same technology components utilized in a different way. Exhibit 4 illustrates this difference. The focus is on collecting data for multiple insurers, ensuring security and making data easily available. Note that some investment providers are also offering SCR scoring services to calculate the asset SCR of a particular portfolio and hence the addition of an SCR calculation engine.

Exhibit 4 – Fund Managers Data Architecture



Conclusion

Meeting the asset data requirements of Solvency II requires that insurers, fund managers, custodians and market data providers invest time and effort finding data, and developing new systems and processes. In these early days, many insurers may apply a piecemeal approach. However, in the long term, the sourcing and aggregation of market data feeds will have to be automated. Already, some investment managers have set up dedicated Solvency II and SCR scoring service (rating the capital impact of a given portfolio), a trend that will undoubtedly continue.

The importance of analytical data for Solvency II and other regulatory regimes, such as IFRS 4 and likely future stress test requirements, should not be underestimated. Investing in a sound analytical data framework makes sense not only in the short term, but also in the long term. Reinventing the data wheel every time that there is regulatory change is simply inefficient.

Moody's Analytics capabilities

Moody's Analytics, a leading provider of credit data, offers a comprehensive range of solutions for managing insurance regulatory capital calculations, analytical data and reporting. Our solutions encompass data consolidation, ratio calculations, Solvency II, credit data feeds as well as regulatory reporting. They help insurance companies comply with all facets of the Solvency II directive while providing the foundation for improved strategic decision making and performance metrics.

To learn more, visit moodyanalytics.com/RiskIntegrity™.

© 2014 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. ("MIS") AND ITS AFFILIATES ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND CREDIT RATINGS AND RESEARCH PUBLICATIONS PUBLISHED BY MOODY'S ("MOODY'S PUBLICATIONS") MAY INCLUDE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL, FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS AND MOODY'S OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. CREDIT RATINGS AND MOODY'S PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. NEITHER CREDIT RATINGS NOR MOODY'S PUBLICATIONS COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS AND PUBLISHES MOODY'S PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS FOR RETAIL INVESTORS TO CONSIDER MOODY'S CREDIT RATINGS OR MOODY'S PUBLICATIONS IN MAKING ANY INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing the Moody's Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

MIS, a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MIS have, prior to assignment of any rating, agreed to pay to MIS for appraisal and rating services rendered by it fees ranging from \$1,500 to approximately \$2,500,000. MCO and MIS also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moody's.com under the heading "Shareholder Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

For Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail clients. It would be dangerous for "retail clients" to make any investment decision based on MOODY'S credit rating. If in doubt you should contact your financial or other professional adviser.