MOODY'S INVESTORS SERVICE

RATING METHODOLOGY

Enhanced Equipment Trust and Equipment Trust Certificates

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Analyst Contacts:

NEW YORK +1.212.553.1653

Jonathan Root, CFA +1.212.553.1672
Senior Vice President
jonathan.root@moodys.com

Robert Jankowitz +1.212.553.1318
Managing Director – Corporate Finance
robert.jankowitz@moodys.com

FRANKFURT +49.69.70730.700

Jeanine Arnold +49.697.073.0789
Vice President – Senior Credit Officer
jeanine.arnold@moodys.com

LONDON +44.20.7772.5454

Mario Santangelo +44.20.7772.8623
Associate Managing Director
mario.santangelo@moodys.com

» contacts continued on page 18

This rating methodology replaces "Enhanced Equipment Trust and Equipment Trust Certificates", last revised on December 23, 2015. We have updated some outdated links and removed certain issuer-specific information.

Summary

This rating methodology outlines our approach to assessing credit risk for Enhanced Equipment Trust Certificates and for Equipment Trust Certificates ("EETCs" and "ETCs", respectively, or "Certificates") issued by airline or railroad companies. The methodology is intended to provide general guidance that helps companies, investors and other interested market participants understand how qualitative and quantitative risk characteristics are likely to affect rating outcomes for Certificates. The methodology does not include an exhaustive treatment of all factors that are reflected in our ratings of these instruments but should enable the reader to understand the key attributes that distinguish the ratings of these instruments from each other and from ratings assigned to corporate debt and other securities.

Relative to the rating on the specific airline funding an EETC pass-through trust, we typically rate senior tranches of EETCs with sizeable equity cushions collateralized by aircraft at least several notches higher than the Corporate Family Rating (CFR) of a speculative grade-rated airline and at least up to a few notches higher than the Senior Unsecured rating of an investment grade-rated airline. Ratings assigned to ETCs secured by railroad rolling stock including locomotives are also rated up to a few notches higher than the railroad issuer's senior unsecured rating. Our approach incorporates the unique legal framework and structural considerations of Certificates and reflects the lower default rates and higher recovery rates that these instruments, particularly senior tranches of EETCs that finance aircraft, have demonstrated relative to traditional secured corporate debt obligations.

The EETC senior tranche LTV notching grid in this methodology suggests one to three additional notches of potential uplift above an airline's Corporate Family or Senior Unsecured rating for a number of LTV ranges. This potential uplift provides increased transparency as to our evolving opinion on the relationship between aircraft collateral and the probability of affirmation of an EETC given an airline bankruptcy.[1] The following factors increase our expected probability of affirmation of EETC Certificates following an airline bankruptcy:

» As airline fleets are increasingly updated for new generation aircraft and airlines are also moving in the direction of lower leverage for some EETC transactions, we expect to see some new EETC transactions with substantial over-collateralization of senior tranches that are secured by aircraft that are particularly essential for the airline's strategy and network.

» Airlines' strategy to conservatively manage capacity and the more condensed industry structure, implies fewer marginal aircraft in fleets and supports a higher expected probability of affirmation, especially for transactions collateralized by strategically important aircraft models.

» The prevalence of intercreditor agreements that require cash flows received by the trusts following a certificate default to be distributed to the most senior tranche outstanding regardless of their source[2]

The first section of this methodology discusses the characteristics of EETCs, including how they differ from ETCs, as well as an overview of our rated universe of Certificates. In the second section of the methodology, we describe our approach to assessing the creditworthiness of Certificates which effectively comprises the consideration of six key rating factors:

1. Corporate Family or Senior Unsecured Rating of the Obligor of the Underlying Financing[3]
2. Legal Framework
3. Liquidity Facilities
4. Collateral Attributes and Valuation
5. Loan-to-Value Assessment
6. Terms of Equipment Note Indentures and Other Underlying Financing Instruments

Overall, the ratings approach considers our assessment of the often unique and situational characteristics of the issuers, the applicable legal regime in effect and the specific equipment collateral underlying the Certificates.

In the third section of the report, we discuss other features of Certificates and developments that underlie our analytic approach to assessing the creditworthiness of Certificates.

Characteristics of Certificates

EETCs and ETCs

EETCs and ETCs each finance aircraft, multiple aircraft for the double E and a single aircraft for the single E. No railroad has issued an EETC, but railroads have used ETCs to finance rolling stock. The structure of Certificates is similar in that each is a pass-through financing, whereby a trust is created to issue the rated instrument (i.e., Certificates), the proceeds of which are used to purchase equipment notes issued by either an airline or railroad or a third-party owner of the collateral. There are separate equipment notes or leases for each aircraft in a transaction, but typically one to a few master notes or leases for rail transactions. The pass-through trust receives the contractual payments of interest and principal due on the equipment notes, which in the case of a third-party owner are funded via rental payments received from the airline or railroad

[1] Importantly, while the LTV notching grids are an important component of the overall methodology, in unusual cases reflecting unique transaction-specific characteristics or circumstances, ratings may be assigned that are outside of the guidance suggested by the grids.

[2] Excludes drawings on liquidity facilities that support interest payments due on junior tranches.

[3] The cash payments, which are made by the obligor pursuant to the terms of the underlying financing instruments, fund the pass-through trusts that issue the rated Certificates.

that operates the equipment. The cash flows received by the trust fund the scheduled distributions of interest and pool balances (principal) required by Certificates' terms.

Because the issuers of Certificates are bankruptcy-remote pass-through trusts that are independent of the obligor of the underlying financings that fund a transaction's pass-through trusts, Certificates do not necessarily default upon a bankruptcy or insolvency filing by the underlying airline or railroad obligor. Importantly, as discussed in more detail below, the provisions of Sections 1110 or 1168 of the US Bankruptcy Code provide for the financings of the collateral of a Certificate financing to be exempt from the automatic stay provisions of Section 362 of the US Bankruptcy Code. Provisions of The Cape Town Convention provide similar provisions for Certificate transactions whose underlying financings are subject to non-US legal regimes.

EETCs differ from ETCs in that they are "enhanced" by the following: 1) a liquidity facility that funds a specified number of interest payments due on the equipment notes following a payment default on the underlying instrument, 2) priority tranching with clearly-defined intercreditor arrangements and 3) cross-default and cross-collateralization for transactions issued since 2007.

Liquidity facilities provide important support to EETC ratings as they delay, if not prevent, a default of an EETC. Since ETCs lack a liquidity facility, the probability of default on ETCs is elevated relative to the probability of default on EETCs. The priority tranching of EETCs provides for a senior tranche with a meaningfully lower LTV than that found in the single tranche of an ETC, further supporting higher ratings. EETCs with cross-default and cross-collateralization can have lower probability of default and enhanced recovery relative to EETCs that lack these features. Under an operator bankruptcy scenario, the cross-default feature makes the airline more likely to affirm its obligations under a specific financing, the premise being that at least some of the aircraft in the collateral pool are needed for ongoing operations. Cross-collateralization comes into play in a repossession scenario. Excess proceeds from the sale of an aircraft are retained by the trustee, making such amounts available for funding potential shortfalls from sales of a Certificate transaction's other aircraft or equipment notes.

ETCs can be bundled into what is called a PTC, or Pass-Through Certificate. PTCs are not cross-defaulted or cross-collateralized and were the more popular instrument used to finance aircraft prior to about 1995, when leveraged leases received more favorable treatment under the US tax code. Few ETCs remain outstanding following the bankruptcies of the large US legacy carriers that occurred since 2000. No railroad has yet to issue an EETC and issuance volume of rail ETCs has been minimal for many years. While ETCs for aircraft finance single assets, ETCs for rail equipment are multi-asset collateral financings.

Efficacy of Section 1110 Supports Notching of EETCs

The legal framework for Certificates issued by US companies relies on either Section 1110 (aircraft) or Section 1168 (railroad equipment) of the US Bankruptcy Code, which have been in effect for several decades and, in the case of Section 1110, for which there is significant case history. The efficacy of Section 1110, which US courts have repeatedly affirmed, is a critical feature upon which the structure of Certificates is built. The legal effectiveness of the structure provides the foundation for ratings higher than those assigned to senior secured corporate obligations of the underlying airline or railroad. We make a separate evaluation of the particular legal framework when transactions involve non-U.S. legal jurisdictions, such as for transactions subject to the Cape Town Convention[4] or other insolvency regimes, to assess the extent to which the expected probability of default and expected loss for an EETC are lower than for traditional corporate obligations under such a legal system. The mobile nature of aircraft is an additional factor that contributes to higher notching relative to traditional corporate obligations.

[4] The Convention on International Interests in Mobile Equipment ("Convention") is an international treaty enacted by 53 signatory countries in October 2001 in Cape Town, South Africa. The Convention was created to promote the financing or leasing of movable equipment, specifically, aircraft including helicopters, aircraft engines, railroad rolling stock including locomotives and space assets, including rockets and satellites. A Protocol to the Convention on Matters Specific to Aircraft Equipment was also created to guide the implementation of the Convention by adopting states. The Convention and Protocol are collectively referred to as "The Cape Town Convention" or "Cape Town").

The remainder of this report focuses on the most common transaction type, aircraft EETCs. Our approach for evaluating the creditworthiness of ETCs that finance aircraft or rail equipment parallels that for EETCs; although we use different LTV suggested notching grids for those financings. Our LTV suggested notching grids for ETCs are included in the appendix of this document. Railroad rolling stock transactions are subject to Section 1168 of the US Bankruptcy Code, the terms of which emulate Section 1110 applicable to aircraft, and for which we believe US courts would similarly affirm as they have for Section 1110.

Certificate Issuers are Distinct from Airline Obligors

Certificates rated using this methodology are not direct obligations of, nor are they guaranteed by the underlying airline. As long as the airline makes the required payments due under the note indenture, conditional sale agreement or lease and for the administrative expenses provided for in the transaction documentation, the trusts will have funds available to meet scheduled distributions on their Certificates. However, in the event of bankruptcy or insolvency of the obligor of the underlying instrument, such obligor would need to decide within 60 days of the bankruptcy or insolvency date if it wishes to continue to utilize the equipment financed by a Certificate (i.e., affirm, or an "1110 (a) election"). If the obligor wishes to continue using the equipment, it would bring current and/or maintain payments due on the equipment notes or leases supporting the Certificates, during its reorganization.

Due to a number of factors, the default probability of Certificates is on average materially lower than the default probability of an underlying obligor's corporate debt instruments. These factors include the bankruptcy remoteness of the trusts, the importance of the equipment collateral to the airline's route network, the requirement for the debtor to cure defaults, if any, of the underlying financing instruments in order to retain access to the equipment collateral following the initiation of a bankruptcy or insolvency, and the existence of a liquidity facility.

The essential nature of some or all of the aircraft that serve as collateral for a particular EETC lowers the probability of disaffirmation of the respective underlying financing arrangements following the initiation of a bankruptcy or insolvency. We believe that cross-default also further lowers the probability of disaffirmation. However, it should be noted that in some individual transactions, particularly those collateralized with the oldest aircraft in a fleet, aircraft that will not be featured in a post-reorganization network or that are not cross-defaulted or cross-collateralized, have a higher probability of being disaffirmed following the insolvency of the underlying obligor. If the operator determines that it does not wish to retain the equipment, Section 1110 allows for the automatic stay to be waived and facilitates the timely repossession of the collateral. As a result, the ability of Certificate holders to claim and monetize their collateral early in a bankruptcy (perhaps before meaningful erosion of value or a state of disrepair occurs) is a key reason that higher recovery, on average, is expected under a repossession scenario, as compared to that for corporate obligations that remain subject to the automatic stay.

To the extent that the proceeds realized from liquidation of the collateral are insufficient to extinguish the aggregate of fees and expenses, costs to sell, accrued interest and the outstanding balance of the underlying financing obligation, the trustees of the Pass-Through Trusts would have residual unsecured claims against the bankruptcy/insolvency estate of the underlying airline.

About the Rated EETC Universe

We rate EETC tranches and aircraft ETCs or PTCs. While ETCs and PTCs remain the Certificate of choice for the railroads, EETCs have been the capital market instrument of choice of the U.S. airlines for financing aircraft.

The Ratings Approach

Types of Financings Subject to this Methodology

This methodology applies to financings of aircraft, aircraft engines or parts or railroad equipment (rolling stock) that are funded by direct obligations of an underlying obligor that are each subject to laws that provide for continuing payments or the return of the collateral following the initiation of a bankruptcy or insolvency of the underlying obligor.

We typically rate senior tranches of EETCs with sizeable equity cushions collateralized by aircraft at least several notches higher than the Corporate Family Rating (CFR) of a speculative grade-rated airline and at least up to a few notches higher than the Senior Unsecured rating of an investment grade-rated airline. Our notching practices are based on the US legal framework. We assess the strength of non-US legal frameworks relative to that of the US when rating aircraft or rail equipment financings subject to non-US legal jurisdictions. In situations where the governing law for a transaction does not provide lenders the ability to timely exercise their rights provided by the underlying security agreements in the event of insolvency, or we have concerns regarding the jurisdiction's compliance with such rights, less rating uplift is likely.

Certificate ratings are based on a combination of the risks of a cessation of payments by the airline or railroad obligor to the pass-through trust(s) and the potential recovery available because of over-collateralization and more timely access to collateral as provided for under the relevant legal framework. While the ratings approach is applied equally to aircraft and rail equipment, there are differences in suggested notching for the different types of equipment. The presence of several factors collectively lower the expected probability of default and expected losses given default of EETCs, particularly the most senior tranche, relative to that of a corporate obligation of the underlying airline obligor, and from that of ETCs. These factors include a favorable legal regime, the presence of a liquidity facility, and a typically sufficient equity cushion for the most senior tranches, the importance of the collateral to an airline's network and cross-default and cross-collateralization features for transactions from 2007 and later. These factors provide the basis for rating senior tranches of EETCs a significant number of notches above an airline's Corporate Family or Senior Unsecured rating as well as above our ratings of ETCs.

Analytic Framework

1. Corporate Family Rating

We start with an issuer's Corporate Family rating (for speculative grade issuers) or senior unsecured rating (for investment grade issuers) when rating Certificates. This is because payments by the issuer pursuant to the terms of an underlying financing fund the scheduled distributions of the rated Certificate(s) pursuant to the terms of the pass-through financing documentation. We first determine the rating of the obligor of the underlying financing obligations before considering a Certificate's attributes.

The ratings analysis begins with an assessment of the credit quality of the underlying airline and is a critical difference relative to structured finance transactions (not covered by this rating methodology), which typically involve pools of aircraft leased to multiple airlines. We believe the concentration of risk with a single underlying obligor is a key credit consideration in relation to default probability, and less so to expected loss. Cash flows from the underlying obligor are the sole source of funding to the pass-through trusts that fund distributions on the Certificates while the underlying obligor is not in default. Furthermore, the aircraft that comprise the collateral do not change over time and are the sole source of security under an EETC default scenario. These attributes differ from those of securitizations that rely on cash flows from multiple obligors, usually have waterfalls with variable debt service distributions and the ability to transition an aircraft to a different operator should an incumbent operator default or the lease ends. The reorganization strategy of a single underlying obligor can influence its decisions regarding retaining or exiting certain aircraft types, which can directly affect default rates and recovery values of Certificates.

Our ratings are forward-looking and incorporate our expectations and estimates of the future financial and operating performance of the underlying obligor.[5]

2. Legal Framework

We next consider the legal framework that will apply to the financing. For Certificates whose underlying financings are subject to the Cape Town Convention or other non-U.S. insolvency regimes, we form an opinion of the extent to which the applicable legal regime contributes to lower expected probability of default and lower expected loss relative to that under Section 1110. We perform this assessment on a case-by-case basis. In some cases, we may conclude that the legal regime offers benefits similar to that seen in the U.S. framework. However, there could be less rating uplift even in situations where the Cape Town Convention has been adopted and implemented by the country whose law governs the underlying financing transaction or lease. We note that the methods for adopting or implementing the selected provisions of Cape Town in a country's national laws can vary by country and there remains few precedents of enforcement that demonstrate that compliance by contracting states will lead to timely access to collateral. Any precedents of enforcement will inform the expectations for behavior in a particular jurisdiction, but will not necessarily be portable to other jurisdictions. A country's historical compliance with international treaties and its domestic laws, including regarding owner's rights to repossess their assets following a lessee default, will be a key consideration in our assessment of Certificate transactions subject to laws other than Section 1110. We also consider the institutional strength of the country of domicile of non-US EETC issuers according to our sovereign ratings teams when assessing the legal jurisdiction.

3. Liquidity Facilities

Liquidity facilities for EETCs are typically sized to fund three semi-annual (or six quarterly) interest payments due on the underlying equipment notes that fund an EETC's pass-through trust following a payment default on one or more underlying financing instruments. Contractual terms of Certificates define a default as the non-payment by the Pass-Through Trustee of a scheduled interest payment or non-payment of the pool balance ("principal") then outstanding at the legal final maturity date.

The liquidity facility is an important feature that sets EETCs apart from ETCs or PTCs. These facilities defer, if not prevent, a default of an EETC whose underlying financing(s) have been disaffirmed by the carrier that has filed for bankruptcy protection. Under a repossession scenario, Trustees have up to an additional 180 days under a semi-annual pay EETC, or up to 90 days under a quarterly pay transaction to monetize the collateral before a default for non-payment of scheduled interest would occur, following the exhaustion of the liquidity facility.

The tenor of the liquidity facility is intended to provide time for an orderly liquidation of the foreclosed collateral. While the liquidity facility does not provide for payments of scheduled distributions of the pool (principal) balance of an EETC, the terms of these instruments specify that failure to pay principal becomes an event of default only at the legal final maturity date, which occurs the same number of months following the final scheduled maturity date as is the tenor of the liquidity facility. The legal final distribution date for tranches that lack a liquidity facility is that tranche's scheduled final payment date.

A tenor of 18 months is the standard for liquidity facilities for transactions governed by Section 1110 as well as for non-US legal regimes where it is expected that creditors would have similar, timely access to collateral following an EETC default. For transactions where there are reservations about timely enforcement and/or timely repossession of collateral, a longer tenor on the liquidity facility might be considered to avoid a reduction in the number of notches applied when rating an EETC, all else equal. A longer liquidity facility might also be present in a non-US dollar Certificate financing to assuage concerns about a potential sustained depreciation of the US dollar that might occur during, or has occurred prior to, a

[5] For an explanation of our approach to assigning ratings to the underlying obligors of Certificates, please refer to our methodologies for rating companies in the passenger airlines or global postal surface transportation and logistics industries. These methodologies can be accessed by using the link in the Related Publications section of this report.

Certificate default where the Trustee seeks to monetize the aircraft, or for a transaction collateralized by what we deem to be a niche aircraft.

EETC transactions require a minimum threshold rating for the provider of the liquidity facility. We believe that a financial institution with a long-term rating or counterparty risk assessment (CRA) of at least Baa2 will typically meet a commitment to fund liquidity facility draws, should a drawing request be made. Transaction terms require timely replacement of the provider of the liquidity facility if its relevant rating (e.g. long-term rating or CRA) falls below the threshold rating, otherwise the facility may be drawn, cash-collateralizing the commitment. We do not cap tranche ratings at the rating of the liquidity provider as we believe the probability of the airline obligor and the financial institution defaulting at the same time is very low and because of the replacement requirement in an EETC's terms, following a rating of the liquidity provider falling below the required threshold rating.

The liquidity facility is usually a revolving line of credit. While not widely used, cash collateral accounts or letter-of-credit facilities can also support Certificate interest obligations. Note that an EETC supported by a liquidity facility is not in default under its terms when the airline has failed to make one or more payments pursuant to the contractual terms of the underlying equipment notes or leases. The liquidity facility would be utilized and the Trustee would pursue its rights under the underlying financing instruments. These rights include repossession, including the ability to seize the aircraft collateral if the airline does not affirm its obligations during the 60-day Section 1110 period or Cape Town Alternative A waiting period. It is anticipated that before the liquidity facility is exhausted either payments from the airline will resume or the aircraft will be sold or on-leased by the Trustee. Sale proceeds will be paid to certificate holders after repayment of fees and expenses and interest and drawings due the liquidity facility provider, which hold priority positions in a transaction waterfall.

4. Collateral Attributes and Aircraft Valuation

After consideration of the legal framework and liquidity facilities, we evaluate the nature of the collateral and the amount of over-collateralization in each tranche of a transaction. We consider qualitative features of the collateral and quantitative measures of loan-to-value to determine the number of notches above the airline's underlying rating that we believe is appropriate for the instrument rating. We use the peak LTV over the life of a transaction when applying our LTV grids. We consider recent third-party appraisals, valuation guides prepared by ISTAT-certified[6] appraisers and other market intelligence when estimating market values of aircraft when assigning and monitoring our Certificate ratings. For new issues, the airline provides appraisals from three independent ISTAT-certified appraisers for each aircraft in a transaction. These appraisals serve as a starting point for our analysis of over-collateralization.

We calculate LTVs using our estimates of current market values of aircraft at their half or non-maintenance adjusted lives. Issuers base the LTVs disclosed in their offering memorandums on the lower of mean or median of the appraised maintenance-adjusted base values.[7] We prefer market values to base values since base values represent values under assumed or hypothetical market conditions and can over- or under-state market value. The differences between base and market values tend to be greater during periods of weak passenger demand when current market values face the most pressure. We cross-reference the appraisal values the issuer discloses to market values of other ISTAT-certified appraisers and to other anecdotal information about aircraft values, which a host of factors can influence, including those shown in Exhibit 1.

[6] International Society of Transport Aircraft Trading.

[7] An appraiser's opinion of the economic value of an aircraft in an open, unrestricted market with balanced supply and demand. Base value typically assumes average physical condition and relies on historical value trends normalized for swings in economic conditions.

EXHIBIT 1

Enhanced Equipment Trust and Equipment Trust Certificates

	Factor	Comment
1	The representation of the aircraft in the issuer's fleet and the importance of the aircraft to its strategy and network	Aircraft that will remain core to the airline's network over a transaction's life could increase notching. Aircraft likely to be secondary to a scaled-down network under a reorganization scenario or aircraft approaching or older than 15 years that are likely to be replaced by younger vintages could reduce notching.
2	Technological status of the aircraft	Are models exposed to replacement by more efficient types?
3	Aircraft age	Older aircraft could lose one or more notches, particularly if exposed to technological obsolescence. New deliveries including for new technology aircraft could gain a notch relative to ratings assigned to transactions with younger models of existing technology aircraft.
4	The production status, backlog and delivery position of included models and tail numbers	Out-of-production models typically receive valuation discounts; we may apply larger discounts than those implicit in appraisal values; early and late line numbers may also receive larger valuation discounts
5	The size of the current global operating fleet by model and type The number of operators of a particular model and type	Indicators of potential market demand for an aircraft model/type over time
6	Engine types	For example, we could develop a value lower than one suggested by the appraisers for older airplanes paired with less efficient or less liquid engines

Our assessment of the relative importance of the various attributes of aircraft collateral may vary by operator and the type of transaction, leading to different notching outcomes for transactions collateralized with at least some similar aircraft models or types.

We divide the scheduled pool balance by our estimate of market value at each of the scheduled payment dates in order to identify the peak LTV over the transaction's term and to project the pace and degree to which excess collateralization might change over time. We measure our LTVs with and without an assumed full draw of the liquidity facilities and incurrence of costs to sell, assumed at about 5% of market value. On a combined basis, these two priority claims have represented about eight (more recent transactions) to fifteen percentage points (older transactions) on average, reducing the equity cushion available for certificate holders. This consideration becomes more prominent for certain EETCs of airlines when rated at the lower end of the rating scale because the probability of a default on certain Certificate financings can increase with the increase in the probability of default of the underlying obligor. These priority claims reduce the equity cushions disclosed in offering memorandums and those we estimate based on market values, supporting our notching practices.

We have traditionally reduced values of aircraft by between 3.5% and 4.5% of original value per year from year three when projecting future values and by 7.5% and 5% in year 1 and year 2, respectively. These reductions are tempered by the annual inflation rate assumption of 1%. Our inflation assumption is subject to change if broad measures of inflation were to meaningfully change or if aircraft value trends demonstrate a return of inflation. We have also used the same curve for both narrow-body and wide-body aircraft. We would use a more punitive curve for regional jets with fewer than 90 seats. We use a conservative assumption of zero residual value when applying our curve to project future market values. As peak LTVs have typically occurred within the first twelve months of delivery for the majority of new issues since 2008, our residual value assumption does not affect the application of our LTV notching grid, but does provide estimates of modestly smaller increases in the equity cushion as transactions age, and better alignment with how aircraft values have performed over time. As part of monitoring market conditions and projecting loan-to-value curves, we may periodically revise the annual rates of decline in aircraft values. For example, the

rates of decline in market values of current generation aircraft typically increase when new generation aircraft are introduced and commence service.

5. Loan-to-Value Notching Grids

Our loan-to-value notching grids for EETCs suggest the standard maximum number of notches a rating committee might consider when assigning EETC ratings. Exhibit 2.1 shows our Senior Tranche LTV Grid. The models, vintages and exposure to technological replacement of aircraft that comprise the collateral of two distinct Certificates with similar LTVs can meaningfully differ as can our estimates of future market values. As a result, assigned ratings for such transactions could differ.

EXHIBIT 2.1

AIRCRAFT

EETC - Senior Tranches

Table Suggested Maximum Certificate Rating for Airline's Corporate or Senior Unsecured Rating and LTV

Loan to Value	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1
Low																
< 40%	Aaa	Aaa	Aaa	Aaa	Aaa	Aa1	Aa1	Aa1	Aa2	Aa2	Aa2	Aa3	A1	A2	A3	Baa1
< 50%	Aaa	Aaa	Aaa	Aaa	Aaa	Aa1	Aa1	Aa1	Aa2	Aa2	Aa2	Aa3	A1	A2	A3	Baa1
< 60%	Aaa	Aaa	Aaa	Aaa	Aa1	Aa2	Aa2	Aa2	Aa2	Aa3	Aa3	A1	A2	A3	Baa1	Baa2
< 70%	Aaa	Aaa	Aaa	Aa1	Aa2	Aa2	Aa3	Aa3	Aa3	A1	A1	A2	A3	A3	Baa2	Baa3
< 85%	Aaa	Aaa	Aa1	Aa2	Aa2	Aa3	A1	A1	A1	A1	A2	A3	Baa2	Baa2	Baa3	Ba1
< 100%	Aaa	Aaa	Aa1	Aa2	Aa3	A1	A2	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	Ba2
> 100%	Aaa	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	A3	Baa2	Baa3	Ba1	Ba2	Ba3	B1	Ba3

The layout of the grid highlights the larger emphasis on collateral when the probability of default increases. For issuers with Corporate Family ratings below Caa1 at the inception of a transaction, we will contemplate the potential for the transaction to be affirmed should a bankruptcy / insolvency occur when considering notching. The transaction attributes we typically consider as well as the potential for affirmation should a bankruptcy occur will determine the extent of notching in these cases.

We believe that transactions collateralized with entirely new deliveries of current technology aircraft can typically achieve similar notching to those transactions that include some of the newest technology aircraft as long as the tenors remain shorter than about 15 years, a timeframe well within the expected economic lives of current technology aircraft delivering new in the next few years and for which a new delivery would remain integral to an airline's network. For example, transactions that will be collateralized by at least some new or recent deliveries of 1) the newest technology aircraft (Boeing B787 or B737MAX or Airbus A350 or A320neo), or 2) current technology aircraft, such as the Airbus A321 or Airbus A330 or the Boeing B777-300ER, B737-800 or B737-900ER could receive higher notching than transactions for other aircraft models.

We are more likely to rate transactions within zero to two notches of the standard maximum number of notches if collateral includes at least some of these newer aircraft models and are cross-defaulted and cross-collateralized. LTVs that are below the mid-point of an LTV range and or transactions by airlines in markets where capacity discipline is a widespread operating strategy could also lead to notching outcomes closer to the standard maximum number of notches at a grid intersection. Transactions collateralized by older aircraft in a carrier's fleet would likely receive less notching than transactions with all new deliveries.

We typically see LTVs in the 60% to 80% range when initially rating junior tranches of aircraft EETCs and near 90% for the few Class C tranches issued in recent years. Exhibit 2.2 provides our grid for junior tranches.

EXHIBIT 2.2
AIRCRAFT
EETC - Junior Tranches
Table Suggested Maximum Certificate Rating for Airline's Corporate or Senior Unsecured Rating and LTV

Loan to Value	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1
High																
< 50%	Aaa	Aa1	Aa1	Aa2	Aa3	A1	A1	A1	A1	A1	A1	A2	A3	Baa1	Baa2	Baa2
< 60%	Aaa	Aa1	Aa1	Aa2	Aa3	A1	A1	A1	A1	A1	A1	A2	A3	Baa1	Baa2	Baa2
< 70%	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	A2	A2	A3	A3	Baa1	Baa2	Baa2	Baa3	Baa3
< 85%	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	A3	Baa1	Baa1	Baa1	Baa2	Baa3	Ba1	Ba2	Ba2
< 100%	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Baa3	Ba1	Ba2	Ba3	B1	B1
> 100%	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3

Refer to the appendix for our separate LTV notching grids for rail equipment and for aircraft ETCs or PTCs.

6. Terms of Equipment Note Indentures or Other Underlying Financing Instruments

The terms of related EETC trust documents, indentures of underlying equipment notes and intercreditor agreements have become mostly uniform. The additions of leases or conditional sale agreements (CSAs) to the structure of a particular EETC transaction have not in and of themselves resulted in notching differentials, relative to our practice for rating traditional mortgage financing EETCs, all else equal. To support ratings assignments and to minimize notching discounts relative to our ratings practice for EETCs, we look for the leases or CSAs to also be cross-defaulted.

The LTV grids provide rating committees flexibility to differentiate ratings of Certificates whose aircraft, contractual terms and or legal jurisdiction differ from other Certificate financings, but the financing obligations have been similarly sized in LTV terms. The larger notching at the lower end of the ratings scale recognizes the greater weight we place on importance of collateral to the airline, loan-to-values and expected recovery prospects as a potential default of the underlying airline increases. The larger maximum number of notches also provides flexibility to maintain low-investment grade ratings on senior tranches of Certificates collateralized by aircraft that we believe will remain essential to an airline's operations during and following a formal reorganization process. The importance of certain aircraft that serve as collateral for certain of an airline's EETCs can meaningfully lower the probability of default for such EETCs upon an airline's filing for bankruptcy protection[8].

We have observed that a majority of the airlines that experienced a corporate default ultimately affirmed the underlying financings of most or all of their outstanding EETCs. The relatively few transactions that were rejected were mostly collateralized by aircraft that became marginal in the respective carrier's fleet, due either to advanced age, displacement due to technology change or strategy change, such as a fleet conversion from one manufacturer to another, little or no equity value or a combination of these factors.

Key Indenture Terms and Other Factors That Support Lower Default Probability or Improve Recovery Prospects for Senior Tranches of EETCs

Cross-Default

EETCs are supported by a series of underlying equipment notes issued by the underlying obligor airline or third-party owner of each aircraft to the pass-through trust that issues the rated Certificates. Each equipment note relates to the mortgage on an individual aircraft. In older EETC transactions, these notes acted independent of each other, but in transactions issued since 2007, cross-default provisions have made

[8] While it is our practice to withdraw our ratings assigned to corporate issuers and their rated debt obligations upon a bankruptcy filing, this practice does not necessarily apply to the ratings we assign to EETCs.

an event of default by the airline under one note an event of default under all of the other equipment notes in a given EETC. In the transactions issued by non-US airlines after 2011, the operating leases or CSAs are also cross-defaulted. We believe the cross-default feature lowers the probability of default of an EETC relative to that of a transaction that is not cross-defaulted and generally supports notching higher by at least one notch, all else equal. As long as the airline is reorganizing and some of the subject aircraft in a particular certificate are important to the airline's post-reorganization strategy, we believe the likelihood of a disaffirmation of the airline's obligations under the underlying financing instrument in a bankruptcy scenario is lower than that of a similar EETC with like collateral that lacks the cross-default feature. Said more simply, this feature is intended to prevent the airline from "cherry-picking" the collateral pool; that is rejecting the least desirable aircraft, which must subsequently be remarketed by the Trustee.

The increase in the suggested maximum number of notches in the grid for certain LTV ranges relative to the predecessor LTV notching grid also considers our view that the cross-default feature favorably lowers the probability of disaffirmation by an airline, strengthening the credit quality of EETCs.

Cross-Collateralization

We believe that the cross-collateralization feature of the underlying equipment notes provides the potential to enhance recovery for investors, or even avoid a Certificate default, in the event of a disaffirmation by the airline. Cross-collateralization traps any excess proceeds in the trust after the disposition of an aircraft and settlement of the related equipment note. The cross-collateralization feature should reduce any Certificate holder losses relative to those inherent in EETCs that lack these features, particularly for transactions collateralized by at least a few models of sought-after aircraft.

Older vintage transactions pre-dating 2007 are generally not cross-collateralized. This means that after a default on one or more equipment notes, any excess proceeds from the sale of a specific aircraft are returned to the airline (for a mortgage financing) or to the equity participant (for a lease financing) upon the payoff of the related equipment note(s).

For example, we may consider a transaction with many aircraft of different types whose equipment notes are cross-collateralized to likely have a higher recovery in the event of a default, relative to that of a like transaction that lacks cross-collateralization. However, we anticipate that recovery of a cross-collateralized transaction with many aircraft of the same type and vintage would not benefit to the same degree because of the higher correlation of value of each aircraft in such a transaction. With this methodology update, we will now assess cross-collateralization in a qualitative manner, eliminating the practice of reducing our loan-to-values by up to five percentage points based on the number and type of aircraft that collateralize a transaction. This change is intended to reduce the impression of precision of our estimated LTVs implied by the prior practice. Combined with cross-default, cross-collateralization can contribute to additional notching relative to deals that are not crossed.

Cross-Subordination

Cross-subordination facilitates the tranching in an EETC. The cross-subordination provisions are detailed in the intercreditor agreement and are administered by the Subordination Agent, who receives and routes payments made by the underlying obligor on each class of equipment notes to the respective pass-through trustees for the corresponding class of EETCs. Specifically, the intercreditor agreement defines the priority of distribution of funds received by the Subordination Agent on behalf of the pass-through trusts and is also referred to as "the waterfall". Interest and principal paid on the underlying equipment notes are the primary source of cash paid into the pass-through trust(s) for EETCs that are performing pursuant to the distribution schedules detailed in their offering documents. The cross-subordination provisions become effective upon the default of the underlying financing agreement(s) and these defaults are not cured by the underlying obligor pursuant to a Section 1110(a) election or equivalent under Cape Town's Alternative A or other applicable legal regime. Liquidity facility drawings and proceeds from the disposition of one or more aircraft following a default on the underlying financing agreements and repossession of the related collateral

following an 1110(c)[9] election are the cash flows the pass-through trusts receive for non-performing deals. The cross-subordination provisions govern the distribution of these cash flows to certificate holders.

Where all of the notes in an EETC are performing pursuant to the original contractual terms, the application of the expected distributions for transactions issued since 2007 generally is as follows: first, to service provider fees and expenses, which are typically subject to caps, then to interest on the Senior certificates; then to interest on the Preferred Pool Balance of the Class B certificates, then to interest on the preferred pool balance of the Class C certificates, then to principal on the Senior certificates; then to interest on the Class B certificates; then to interest on the Class C certificates then to principal on the Class B certificates, then to principal on the Class C certificates and so on. The Preferred Pool Balance for Class B or Class C certificates relates to the performing notes in a transaction. If an aircraft in a transaction suffered a total loss whereby insurance proceeds were not sufficient to pay off the interest and principal outstanding on the related underlying equipment note or for an aircraft that was sold for less than the outstanding principal amount on the related underlying equipment note, then the remaining balances of the related equipment notes would not be part of the Preferred Pool for that class of certificates.

Transactions issued prior to 2007 do not include the priority payment of interest to the Class B or Class C preferred pools. This feature was adopted to improve the marketability of junior tranches to potential investors since this waterfall provides an incentive to the A-tranche holder (the Controlling Party) to seek a higher value for aircraft collateral being disposed pursuant to Section 1110(c) or when negotiating modifications to equipment note debt service obligations pursuant to Section 1110(b). This feature does not necessarily lead to a tightening of the notching differential between the ratings of senior and junior tranches. The intercreditor agreements since 2007 also place a floor of at least 75% of the current appraised market value on the sale price that the controlling party may accept when disposing aircraft collateral within 270 days of the disaffirmation of an underlying financing by the obligor. There is a similar restriction though potentially with a different, higher percentage on the amount for which the controlling party may sell equipment notes following disaffirmation of a transaction.

Where one or more equipment notes or leases within an EETC are in default, the cross-subordination feature acts to reduce the risk to the senior certificates at the expense of the junior certificates. If the senior and junior classes of the equipment notes of a particular aircraft are repaid in full, then all of the proceeds received by the Subordination Agent are directed by it to the repayment of accrued interest and the pool balance of the Senior certificates first or, if the liquidity facility is drawn, to the liquidity facility provider first and any remaining monies to the senior certificates. In some cases, the holders of junior classes of certificates may receive less than 100% of their pool balance even where some junior ranking equipment notes within an EETC are repaid in full. Here, the payments on the junior ranking equipment notes enhance the recovery of the senior tranche(s).

Probability of Reorganization vs. Liquidation

That airline obligors will reorganize in the event of a bankruptcy filing is a key assumption inherent in our ratings of EETCs. This expectation increases the probability that a carrier will affirm most if not all of its obligations under the related equipment financings for its EETCs during the 60 day Section 1110 period following a bankruptcy filing. Note that for transactions that are not cross-defaulted, the airline retains the ability to cherry-pick aircraft when deciding whether to affirm a transaction during the 60 day 1110 period.

Notwithstanding the reorganization bias, an airline debtor, during and upon exiting bankruptcy, could have a smaller route network requiring fewer aircraft than that prior to its bankruptcy filing. This consequence can affect a debtor's decisions with regard to the options Section 1110 provides to it. We believe that EETCs that have cross-default and cross-collateralization features will be the first Series that an airline would affirm, particularly those with younger aircraft and with relatively low coupons. The relatively recent introduction of these features accompanies collateral pools that generally comprise the younger and/or more essential aircraft of a legacy carrier's fleet, even if comprised mainly of used aircraft. EETC series that lack cross-

[9] This is the part of Section 1110 that provides for the airline to disaffirm its obligations due on a financing that underlies an EETC transaction. This would occur by the end of the 60 day Section 1110 period. The airline is required to return the aircraft to the Trustee following its disaffirmation of a financing.

default could be subject to cherry-picking by the airline obligor. Obligations under ETCs, PTCs and or corporate obligations such as mortgage financings secured by one or a few aircraft would have a greater chance of being disaffirmed in a bankruptcy proceeding because of the relatively older age or fewer aircraft subject to each of these individual financings. However, very few aircraft remaining in the US airlines' fleets are financed by ETCs or PTCs. We believe this increases the risk of a disaffirmation by a carrier of one or more of its EETCs, such as a transaction collateralized by a small number of older aircraft or by older aircraft, should it pursue a bankruptcy reorganization.

Foreign Exchange Risk on Foreign Currency-Denominated Certificates

Since the U.S. dollar is the typical currency at which sales of aircraft occur, we will consider the expected volatility in exchange rates between the currency in which a transaction is denominated and the US dollar as well as the inclusion, if any, of financial instruments or derivatives that an issuer might include to mitigate foreign-exchange risk when assessing notching and ratings of non-U.S. dollar-denominated Certificates. We will evaluate the historical and forecasted volatility of the relevant currency exchange rates to size the risk of a sustained depreciation of the US dollar relative to the degree of over-collateralization. Doing so will indicate the potential for the equity cushion to absorb a significant decline in the dollar against the transaction currency should the monetization of aircraft collateral occur following an EETC default.

Rating Spare Parts and Engine EETCs

This methodology also applies to EETCs secured by an airline obligor's inventory of spare parts or a number of engines. Similar to aircraft EETCs, the ratings analysis starts with the Corporate Family or senior unsecured rating of the airline obligor. We consider the legal framework and whether liquidity facilities support one or more of the tranches. We use the relevant Loan-to-Value Notching Grid(s) to determine the Base-line LTV of a given transaction. The single note, single mortgage structure of spare parts EETCs provides an all or none proposition regarding affirmation of the obligations of the underlying notes. Relative to EETC's secured by aircraft, we believe that the probability of default is lower for spare parts Certificates because an airline requires access to its spare parts in order to retain its airline operating certificate. Transaction documents typically require maintenance of a specified loan-to-value as well. A carrier would have great difficulty maintaining its operations if it lost access to its parts inventory. However, under a disaffirmation, which would likely accompany a liquidation under Chapter 7 of the bankruptcy code, the loss given default would likely be greater relative to that of an EETC secured by aircraft because of the greater potential for shrinkage or other value impairment on liquidations of parts than on aircraft, unless there is a high proportion of rotable[10] parts for attractive aircraft models and engines.

The analysis for aircraft engine EETCs is closely associated with the long-term utility of the relevant airplane type. We would expect these transactions to be cross-defaulted and cross-collateralized. Unlike the spare parts EETCs, the collateral typically is a minority of the operating airlines' owned engines, which can lead to a higher probability of default relative to that inherent in a spare parts deal if the aircraft that use the engine collateral become marginal in the operator's fleet. Transaction terms for Certificates with collateral of these types require semi-annual appraisals because of the sharp swings in value between a just serviced engine and one that is just about to enter the maintenance shop. Similarly, the contents of parts inventories frequently change. Financing terms require a "top-up" (either the pay-down of debt, contribution of cash, adding additional engines or other collateral or a combination thereof) to maintain the certificate loan-to-value ratios at or below required maintenance levels.

Similar to the analysis of aircraft EETCs, we assess the composition of a spare parts collateral pool to determine whether it warrants adjustment to the grid-indicated notching. For example, a disproportionately large contribution of rotable parts of relatively young or new technology aircraft to the total value of the spare parts inventory could lead to a higher expected recovery rate relative to that of another spare parts transaction where consumables and or repairable parts for relatively older aircraft comprise a majority of

[10] Rotables are aircraft parts that can be repeatedly repaired, restoring their functionality to like new condition.

the inventory. Under such a scenario; however, with similar loan to values, it would not be unreasonable to expect a difference in the assigned ratings.

Monitoring of EETC and ETC Ratings

Our analytic approach to monitoring existing transactions is the same as for new transactions and ratings may be adjusted as a result of a number of factors, including changes in transaction performance that differ from our expectations, changes in airline ratings and changes in the strategic importance of aircraft to the airline.

Certificate ratings typically do not change with minor or temporary fluctuations in aircraft values. We monitor LTVs for the rated population on an ongoing basis over a Certificate's life by monitoring aircraft appraisers' opinions of current market values over a Certificate's life. We subscribe to at least two ISTAT-certified aircraft appraisal firms and collect information about aircraft values and trends from other sources. We generally do not move ratings based on fluctuations in estimated collateral value that we believe are minor or temporary. Collateral values, particularly of aircraft, have demonstrated sharp volatility over economic cycles. Volatility in aircraft values can result in periods of higher LTVs during cyclical troughs in the global economy. Our ratings generally look through a period of cyclical changes and consider the longer term fundamental outlook. Similarly, we do not typically expand notching during periods of strong demand that lead to unexpected increases in aircraft values. However, we are likely at any point in the economic cycle to downgrade ratings of tranches that are collateralized by aircraft types and models that we believe have experienced secular declines in their values because of de-emphasis by airline operators or are subject to looming technology risk. Amortization of pool balances helps mitigate potential pressure on equity cushions where aircraft values decline at greater rates than modeled at the inception of a transaction.

Appendices

Appendix 1 – Application of EETC Notching Grids

The below tables demonstrate the most likely notching for EETC transactions for issuers at assumed Corporate Family or Senior Unsecured ratings. The outcomes in the tables assume that the structure and terms of the sample transactions are the same as those typically found in EETC transactions issued by the US airlines since 2007. For example, applicability of Section 1110, cross-default and cross-collateralization, cross-subordination, and 18-month liquidity facilities.

Table 1

Aircraft Models:

Boeing Narrowbodies: 737NG, 737MAX; Widebodies: 777-300ER, 787, 777X

Airbus Narrowbodies: A320ceo, A320neo, Widebodies: A330, A350

Vintages:

New deliveries to up to eight years old

CFR or Unsecured Rating		Baa2		Ba2		Ba3		B2	
Tranche	Approximate LTV	Likely Rating	Likely Notching	Likely Rating	Likely Notching	Likely Rating	Likely Notching	Likely Rating	Likely Notching
A	38%	Aa1	7	Aa2	9	Aa3	9	A2	9
B	55%	A1	4	A2	7	A2	7	Baa1	7
C	75%	A3	2	Baa1	4	Baa2	4	Ba1	4
D	90%	Baa1	1	Ba1	1	Ba2	1	B1	1
A	58%	Aa3	5	A1	7	A2	7	Baa1	7
B	70%	A2	3	Baa1	4	Baa2	4	Baa3	4
C	90%	Baa1	1	Ba1	1	Ba2	1	B1	1

Table 2

Aircraft Models:

Boeing Models not listed in Table 1 and older vintages of models listed in Table 1

Airbus A380, models not listed in Table 1 and older vintages of models listed in Table 1

Vintages:

New deliveries to up to eight years old

CFR or Unsecured Rating		Baa2		Ba2		Ba3		B2	
Tranche	Approximate LTV	Likely Rating	Likely Notching	Likely Rating	Likely Notching	Likely Rating	Likely Notching	Likely Rating	Likely Notching
A	38%	Aa3	5	A1	7	A2	7	Baa1	7
B	55%	A2	3	A3	5	Baa1	5	Baa3	5
C	75%	Baa1	1	Baa3	2	Ba1	2	Ba3	2
D	90%	Baa2	0	Ba1	0	Ba3	0	B3	-1
A	58%	A1	4	A1	5	A2	5	Baa3	5
B	70%	A3	2	Baa2	3	Baa2	3	Ba2	3
C	90%	Baa2	0	Ba2	0	Ba3	0	B3	-1

Variation of any of the key transaction attributes, such as legal jurisdiction, vintages of aircraft, our opinion of the importance of the aircraft collateral to the airline's network, lack of either cross-default and or cross-collateralization or what we deem to be inadequate tenors of liquidity facilities could result in different notching than presented in the above tables. Differences in LTVs but not in the key transaction attributes could also result in different notching outcomes. Inclusion in the collateral of aircraft from other manufacturers or other manufacturers developing competing models to the incumbents, could also result in different notching than presented in this appendix.

Appendix 2 – Notching Grids, ETCs

Number of Notches Typically Added to Corporate Family or Senior Unsecured Rating

Aircraft

ETC

Table Suggested Maximum Notching

		Senior Unsecured / Corporate Family Rating							
Loan to Value		Aaa	Aa	A	Baa	Ba	B	Caa1	Caa2 and lower
Low	High								
	< 50%			4	4	4	4	4	4
50%	< 80%			3	3	3	3	3	3
80%	< 90%			2	2	2	2	2	2
90%	< 100			1	1	1	1	1	1
> 100%				1	1	1	1	1	1

Rail Equipment

ETC

Table Suggested Maximum Notching

		Senior Unsecured / Corporate Family Rating							
Loan to Value		Aaa	Aa	A	Baa	Ba	B	Caa1	Caa2 and lower
Low	High								
	< 50%	0	2	4	4	4	4	4	4
50%	< 80%	0	1	3	4	4	4	4	4
80%	< 90%	0	1	3	4	4	4	4	4
90%	< 100	0	1	3	3	3	3	3	3
> 100%		0	1	1	1	1	1	1	1

Moody's Related Publications

Credit ratings are primarily determined by sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. An index of sector and cross-sector credit rating methodologies can be found here.

For data summarizing the historical robustness and predictive power of credit ratings, please click here.

For further information, please refer to Rating Symbols and Definitions, which is available here.

Moody's Basic Definitions for Credit Statistics (User's Guide) can be found here.

» contacts continued from page 1

Analyst Contacts:

DIFC	+971.4.401.9536

Rehan Akbar +971.4.237.9565
Vice President –Senior Analyst
rehan.akbar@moodys.com

David G. Staples +971.4.237. 9562
Managing Director - Corporate Finance
david.staples@moodys.com

SYDNEY	+612.9270.8117

Ian Chitterer +612.9270.1420
Vice President - Senior Credit Officer
ian.chitterer@moodys.com

Patrick Winsbury +612.9270.8183
Associate Managing Director
patrick.winsbury@moodys.com

TORONTO	+1.416.214.1635

Jamie Koutsoukis +1.416.214.3845
Vice President - Senior Analyst
jamie.koutsoukis@moodys.com

Donald S. Carter, CFA +1.416.214.3851
Managing Director - Corporate Finance
donald.carter@moodys.com

SAO PAULO	+55.11.3043.7300

Marcos Schmidt +55.11.3043.7310
Vice President - Senior Analyst
marcos.schmidt@moodys.com

Marianna Waltz, CFA +55.11.3043.7309
Managing Director - Corporate Finance
marianna.waltz@moodys.com

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Author
Jonathan Root, CFA

Senior Production Associate
Anthony Toribio

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