
The Rating Process for Aircraft Financings

Standard & Poor’s criteria for rating an aircraft financing depend on the nature of the transaction. Transactions may be backed by a single airline and single aircraft, or by different portfolio combinations of multiple aircraft operated by multiple airlines. In order to rate such financings, analysts apply rating techniques from both the Structured Finance and Corporate Ratings departments. The most important factor in determining which rating approach should be applied is the extent to which default risk on the rated security is driven by the airline’s credit or by the value of the aircraft.

The main focus of this criteria review is to describe the analytical process used in the rating of the various types of aircraft financing vehicles. Particular emphasis will be placed on those transactions referred to as aircraft securitizations, which involve packaging a diverse pool of aircraft assets. However, as variations are introduced to the traditional financing methods, structures are increasingly taking on hybrid features which require a high degree of integration between structured, corporate, and legal analysis.

The Spectrum of Financing Vehicles

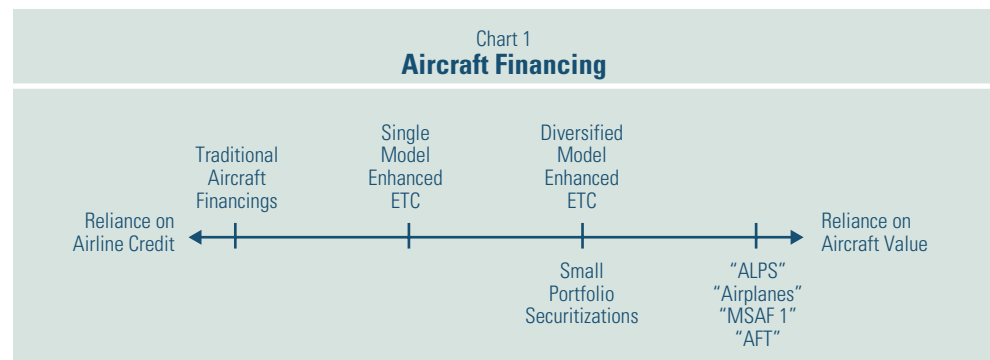
The spectrum of different financing vehicles ranges from those which rely mostly on the airline credit to those which rely mostly on aircraft value (*see chart 1*). Beginning with the credit end of the spectrum, traditional aircraft financings are those which are simply secured debt or leases used to finance a single aircraft or group of aircraft to a single airline. From a credit perspective, these financings are equivalent to secured debt backed by aircraft. Standard & Poor’s would typically rate such debt one or two “notches” (i.e., a plus or minus, one third of a full rating category) above the airline’s corporate credit rating, that is, the company’s risk of insolvency. These instruments are often referred to as equipment trust certificates when financing a single plane in the United States, or as pass through certificates when financing multiple aircraft.

Next along the spectrum are single model enhanced equipment trust certificates. Enhanced ETC's (EETCs) must meet additional criteria which allow higher ratings due to the benefit derived from aircraft collateral value, a dedicated liquidity facility, and other structural enhancements. Single model simply means that the transaction is only financing one kind of plane (whether a single plane or several of the same type). Diversified model EETCs, moving further along the spectrum from airline credit to aircraft value, can achieve somewhat higher ratings because aircraft asset risk has been diversified. Small portfolio securitizations, which bundle together aircraft debt from several airlines and securitize it into tranching securities, is an emerging asset class. These transactions are too small to be evaluated on the same basis as diversified aircraft portfolio securitizations (see below), but involve more than one airline and are analyzed as multi-airline EETCs.

Furthest along the spectrum credit to value are transactions generally referred to as aircraft portfolio securitizations. These involve large numbers of airlines, many of which may be unrated. These airlines are typically located in diverse geographic regions, providing some benefit of diversity. Aircraft asset risk is even more diversified than in the transactions discussed above, due to various combinations of aircraft manufacturers and models. Within the category of aircraft securitizations, the portfolio size and diversity can vary to a great extent. The type of financial asset being securitized can also vary and structures may involve operating leases, tax-oriented finance leases, and loans. The main difference between the ETC structures and the portfolio securitizations is that the securitizations are not directly linked to the credit quality of a particular airline.

The Rating Process

A Standard & Poor's rating addresses the likelihood of an issuer making full and timely payment of interest and ultimate repayment of principal in accordance with the terms of the securities being rated. Most aircraft securitizations and enhanced equipment trust certificates use "soft amortization" with a final legal maturity,



which is the principal payment addressed by the rating. The highest rating that can theoretically be assigned is ‘AAA’, which reflects the opinion that an issuer’s capacity to pay interest and repay principal is extremely strong.

Depending on the particular aircraft financing vehicle being rated, there may be rating caps below ‘AAA’. For example, the maximum rating achievable in an ETC or EETC will depend on the airline’s corporate credit rating. In an aircraft securitization, certain asset types may not be suitable for ‘AAA’ structures. In particular, portfolio securitizations of operating leases have to date been rated no higher than ‘AA’. The maximum rating achievable on portfolio transactions will depend on the asset type, the degree of overcollateralization and the strength of the credit, structure, and legal analysis.

The rating process begins with a proposal discussion initiated by the deal arranger or originator. Due to the complex nature of aircraft financings, initial discussions should take place well in advance of the anticipated closing date. Though it is difficult to generalize about the length of the rating process, which depends heavily on the novelty of the structure, it is recommended that initial discussions take place at least four to six months before a transaction is due to close. Initial contact is usually in the form of a conference call or meeting during which the key features of the transaction are presented. A detailed paper outlining the structure and the proposed asset pool should be provided at this stage. The purpose of this discussion is to identify any significant credit, structural, or legal issues which may be unusual or complicated and which may require additional time to consider or which could prevent the assignment of the final ratings.

Asset Information Requirements

The following information should be presented in the form of a spreadsheet.

By individual asset classification:

- Asset type, (for example operating lease, finance lease, loan, etc.);
- Aircraft models;
- Aircraft age;
- Aircraft appraised value (typically, three independent appraisals of base value);
- Airlines operating the aircraft;
- Airline ratings (internal or Standard & Poor’s);
- Country of carriers;
- Loan amount;

- Loan to value ratio; and
- Term of assets being securitized.

On an aggregate basis, weighted by aircraft value and/or lease revenues:

- Weighted average portfolio age;
- Proportions of various models of aircraft;
- Proportions of narrowbodies and widebodies;
- Proportions of commercial jet, regional jet, turboprops and freighter;
- Country concentrations; and
- Geographic region concentrations.

The formal rating process begins with the agreement on a timetable and the assignment of an analyst who will be the daily contact at Standard & Poor's. An engagement letter will be issued which should be returned as soon as possible. If the originator has not yet been in contact, the rating analyst will introduce him/herself to the relevant individuals.

The banker should shortly thereafter provide a detailed transaction book which provides asset information on the portfolio (*see box*). Analysts will review this information and supplement it with due diligence visits to the relevant parties. The due diligence review is an important part of the rating process. The project's analyst or analysts will meet on site with the management of the originator, and will also meet with the servicer (if different from the originator), the back-up servicer, and any other third party providers of crucial services, for example a cash administrator and hedging agent. The purpose of these visits is to gain a thorough understanding of the asset and industry, focusing in particular on the risks present and the operations of the companies involved in the securitization.

Information gained from the asset/credit analysis and due diligence will be used in the structural analysis. Analysts will review cashflow statements prepared by the banker which should replicate the asset and liability structure of the transaction. Different cashflows will be reviewed for each of the rating stresses. In addition, all legal documentation and opinions to be issued in connection with the transaction will be reviewed.

The rating process is highly interactive during which the rating analyst will be in continuous contact with the originator, deal banker, and their legal advisors. When the transaction structure has been finalized, the analyst will present the transaction to a rating committee. Any issues arising from the committee will be passed on to the banker and other parties to be resolved. Once the documentation, including legal opinions, is in final form and no further changes are required, a rating letter will be issued.

Once a rating has been assigned, ongoing management reviews and surveillance will be required to maintain the rating. On a periodic basis (typically, annually or more frequently, if required), analysts will meet with the originator, servicer, back-up servicer, and necessary third parties. The purpose of these ongoing reviews is to discuss any changes to the business and to review the application of agreed-upon procedures.

Ongoing performance of the transaction will be monitored by the surveillance group. The purpose of the surveillance is to ensure that the rating continues to reflect the performance of the transaction. Performance information will be required on a periodic basis (monthly or quarterly). Before the transaction closes, Standard & Poor's will provide an itemized servicer report detailing all the necessary information required;

it should likewise be informed of any changes concerning the original structure of the transaction including management, credit policy, system changes or parties to the transaction.

Corporate Rating Criteria and Their Relevance to Securitization

An evaluation of airline credit and aircraft asset risk, which are undertaken by corporate ratings analysts, provides analytical input into cash flow modeling of aircraft securitizations. As noted above, aircraft securitizations are an extension of a spectrum of financing forms that range from single aircraft leases or secured debt to large multi-airline pools. Even in the largest securitizations, the number of aircraft and airlines is not so large that a statistical approach to analysis, as may be appropriate for some asset-backed securities, can be used. Accordingly, a brief overview of corporate criteria for rating aircraft-backed debt will be useful in understanding Standard & Poor's approach to evaluating securitizations.

Criteria for Airline Equipment Debt

The simplest form of aircraft financing is secured debt or debt in leveraged leases to one airline. These financings would typically be rated one notch higher than the airline's corporate credit rating. This is based on enhanced prospects for full recovery following a default. In the case of U.S. financings that qualify for protection under Section 1110 of the U.S. Bankruptcy Code, a one- or two-notch rating elevation is based also on slightly reduced default risk. Section 1110 excludes certain types of leases and secured debt from the automatic stay of creditor claims and substitution of collateral sections of the Code. Creditors may repossess collateral if the debtor does not resume debt service or lease rentals, and cure any past due amounts, within 60 days of filing for bankruptcy. This provides an incentive for continued payment under these obligations in bankruptcy, though it does not require payment. Standard & Poor's rating enhancement for these U.S. financings is based on:

- Section 1110's legal provisions, which provide an incentive for continuing payment of interest and principal (thus reducing default risk);
- Accelerated access to collateral if payment is not made, under provisions of Section 1110; and
- The relatively good value retention, over long periods of time, of aircraft, ease of tracking them, and the ability to realize their value by reselling aircraft to other operators in a global market.

Qualifications for Section 1110 Rating Enhancement

To qualify for Section 1110 treatment, creditors must have a security interest in the aircraft (for financings on planes delivered before Oct. 22, 1994, this must be a purchase-money security interest), be a lessor, or be a conditional vendor. Collateral must be aircraft or aircraft parts, and the debtor must be a qualified U.S. air carrier. As discussed below, legal opinions are required to confirm the availability of Section 1110 benefits.

In addition, a two-notch rating elevation can be accorded only in those cases where an airline's size and market position make liquidation unlikely, allowing for a reasonable possibility that the aircraft financing will continue to be paid at the contracted rate through bankruptcy reorganization. Collateral that is technologically or economically less desirable, or that is insufficient to cover outstanding secured debt by a comfortable margin, would also not qualify for the rating enhancement, since a bankrupt airline might well allow such equipment to be repossessed rather than continue debt service.

Legal Opinions Needed

Standard & Poor's requires that an issuer seeking a rating on aircraft financings provides the following legal opinions to support the case for Section 1110 treatment:

- An opinion that creditors have a first priority perfected security interest in the equipment being financed and payments being made by the airline under the related lease, if any, and that the relevant documents have been filed with the Federal Aviation Administration of the US Department of Transportation.
- When the lessor of the equipment to the airline is a trust, opinions bearing on non-consolidation of the assets in the trust, of which the owner participant (equity investor in a leveraged lease) is a beneficiary, with the estate of the owner participant in bankruptcy. This opinion addresses the risk that cash payments from the lessee to the debt holder may be delayed or diverted as a result of the owner participant's bankruptcy.
- For pass-through certificates, an opinion on the valid formation of the pass-through entity, and that the pass-through trust does not constitute an investment company as defined in the Investment Company Act of 1940 and is not subject to federal or state taxation.

Other opinions may be required, depending on the specifics of the transaction.

Degree of Enhancement

The degree of enhancement applied depends on the above factors and the airline's corporate credit rating. Investment-grade airlines receive a one-notch upgrade (e.g., 'A-' to 'A'), while speculative-grade airlines would typically receive a two-notch

enhancement (e.g., ‘B’ to ‘BB-’). When an airline is in Chapter 11 bankruptcy proceedings, the rating on Section 1110 obligations would be based on analysts’ estimate of the likelihood of a successful reorganization and the particular features of the equipment financing under consideration. Such a rating would typically be in the ‘CCC’ category, but might fall into the ‘B’ category if the financing in question is very well secured, or has been affirmed by the bankruptcy court and the airline seems likely to reorganize successfully.

Aircraft Financings Outside the U.S.

Ratings above the airline’s corporate credit rating, typically a one-notch enhancement, are possible for obligations that are well secured with desirable equipment, where the prevailing legal system recognizes rights of secured creditors and lessors, and where access to the collateral is likely to be reasonably timely. While other legal systems rarely have provisions comparable to Section 1110, their insolvency regimes are, in other respects, sometimes more favorable to creditors than is the U.S. Bankruptcy Code. In these cases, the modest rating enhancement is based on prospects for post-default recovery.

Legal Considerations for Airline Equipment Debt

Equipment Notes

As noted above, the simplest forms of aircraft financings in the U.S. that qualify for one- or two-notch upgrades are secured debt and secured debt issued in leveraged leases to one airline. In a secured debt transaction, the airline, as owner of the aircraft, issues equipment notes pursuant to an indenture entered into with a security trustee. The airline’s interest in the aircraft and any related rights are granted to the security trustee, for the benefit of the noteholders, as security for repayment of the notes. In these transactions, it is required that the noteholders have the benefit of a first priority perfected security interest over the aircraft and any related collateral, and would have the benefits of Section 1110 in the airline’s bankruptcy.

Legal opinions are also required confirming the availability of the benefits of Section 1110 and the status and effectiveness of the ownership and security interests in the aircraft. Since the U.S. has an exclusive filing system administered by the U.S. Federal Aviation Administration (FAA) for perfecting and prioritizing interests in aircraft, specialized aviation counsel addresses the sufficiency and effectiveness of the required FAA filings. Counsel qualified in the relevant jurisdictions address the validity and enforceability under local law of the interests in the aircraft, as well as the enforceability of the notes issued. Standard & Poor’s reviews whether any claims may be asserted by creditors of the seller of the aircraft to the airline in the event of

the seller's insolvency. Most direct sales by an aircraft manufacturer to an airline, where the seller has no other continuing role in the transaction, will not raise "true sale" issues requiring specific legal opinions.

Equipment Notes in Leveraged Leases

The traditional U.S. leveraged lease (USLL) involves the issuance of equipment notes to fund the debt portion of the purchase price of an aircraft. Typically, the nominal issuer of the notes is the trustee of a trust formed solely for the purpose of acquiring and leasing the aircraft. Simultaneously with the acquisition of the aircraft from the airline, the trustee leases the aircraft to the airline. The trustee, pursuant to an indenture entered into with a security trustee, issues the notes as limited recourse obligations. The issuer's ownership interest in the aircraft, as well as its interest in the lease and most other property and rights of the equipment trust, are granted as security for repayment of the notes. The trustee also issues certificates to the beneficiary of the trust (the owner participant) as consideration for the contribution by the owner participant to the trust of the equity portion of the purchase price.

In the traditional USLL, it is essential that the ownership and leasing of the aircraft by the nominal issuer does not introduce any risks that may impede access to the airline's credit supporting the lease or access to the aircraft in the event of the airline's insolvency. The benefits of Section 1110 would not be available against the nominal issuer, as the owner of the aircraft, or the owner participant, as beneficiary of the trust, in the event of their bankruptcy. All of the debtor protections afforded to a bankrupt entity and its property would be available to prevent access to the aircraft or the airline's credit through the lease in their bankruptcy. In order to rate the equipment notes above the issuer credit rating of the airline, Standard & Poor's anticipates performance of the lease in the airline's reorganization or realization of the value of the aircraft in a timely exercise of remedies.

Therefore analysts will review the nominal issuer to determine whether it qualifies for the status of a bankruptcy-remote entity. The bankruptcy-remoteness criteria depend on the form of the entity being examined, but for any form there are common requirements including, among other things, that:

- The entity must have limited purposes and activities, consistent with the minimum required to perform its role in the transaction;
- It must be restricted in its ability to incur additional debt to prevent, among other things, a default on an obligation that may have a risk of default greater than that of the rated securities;
- It must be sufficiently separated from the operations and activities of any other entity to sustain an independent legal existence, thereby lessening the risk of attack from the other party's creditors; and

- Its assets should be subject to first priority perfected security interests to reduce the incentive that any unsecured or subsequent creditor may have to attempt to reach these assets.

The ownership structure of the issuer will also be reviewed to assess the potential effect on the issuer of the bankruptcy of its owner. In the traditional USLL, the beneficiary of the trust, the owner participant, constitutes the ownership interest. In a bankruptcy of the owner participant, the analysis principally focuses on the following risks:

- That the liquidator, receiver, or bankruptcy trustee for the owner participant would direct the trustee to terminate the trust and distribute the trust assets to the owner participant;
- That the interest of the owner participant in the trust may be construed as an ownership interest in the aircraft and the lease; and
- That the assets and liabilities of the trust may be combined with the owner participant's estate in bankruptcy under the doctrine of substantive consolidation, a theory of agency, or another similar principle.

Each of these events would result in the aircraft and the lease being brought into the owner participant's bankruptcy estate, which would be inconsistent with a rating based on the airline's credit and the recovery value of the aircraft. Based on its assessment of these risks in the financing, legal opinions bearing on one or more of these risks will be requested.

The legal opinions for a secured debt financing discussed above (including the Section 1110 opinion) also are required. Additional legal opinions are required addressing the creation, perfection and priority of the ownership and leasehold interests of the trust and the airline in the aircraft, the valid formation of the trust and the enforceability of its obligations, and the absence of federal and state taxation at the equipment trust level.

Pass-Through Certificates

Pass-through certificate offerings are an extension of the secured debt financings discussed above. These certificates bundle together equipment notes issued for various aircraft with identical payment terms into new securities that reflect the ratings of the underlying notes.

Pass-through trusts are established pursuant to pass-through trust agreements between the airline and the pass-through trustees. For each aircraft in an offering, the related equipment trust, or the airline, issues equipment notes in various series with payment terms that correspond to the terms desired for the respective pass-through certificates. Each pass-through trustee purchases the corresponding notes with the proceeds from the sale of the related pass-through certificates. The purchasers of the each series of pass-through certificates are deemed to be the grantors of the

related pass-through trust and in the aggregate hold the entire beneficial interest in the pass-through trust.

In addition to the opinions required for each underlying equipment note transaction (including the Section 1110 opinions), opinions are required for these securitizations that confirm the validity and enforceability of the pass-through certificates, the valid formation of the pass-through trust, the absence of federal and state taxation at the pass-through trust level, and the absence of regulation as an investment company under the U.S. Investment Company Act of 1940. Typically, the pass-through certificates are sold in arm's-length transactions to disinterested third-party investors. For each pass-through trust, these certificateholders constitute the owners of the trust. This ownership structure ordinarily does not raise the types of risks, such as those arising because of the owner participant's role in a leveraged lease, that would result in additional opinion requests.

Criteria for Rating Enhanced Equipment Trust Certificates

Enhanced equipment trust certificates fall between simple aircraft debt, which is akin to a secured corporate bond, and diversified portfolio securitizations by building on a corporate credit to achieve higher ratings through overcollateralization and structural enhancements. In these financings, the airline credit is typically undiversified (i.e., a single airline), but the aircraft portfolio may consist of one model of plane or several, allowing some credit for diversifying asset risk.

Standard & Poor's was the first to suggest this structure in general terms, in a criteria article written in late 1993, and even called them "enhanced equipment trust certificates." Now they are often packaged together as pass-throughs, and thus called "enhanced pass-through certificates."

The key features of these financings that allow a higher rating are:

- Debt tranching, providing for various levels of overcollateralization;
- Dedicated liquidity facilities, which usually pay interest only while an aircraft is being repossessed and sold;
- "Soft" amortization scheduling, so that interest is paid on a fixed schedule but principal is legally not due until the final maturity date (which is after the expected maturity date); and
- Reliance on a secure legal mechanism to assure access to the collateral on a timely and predictable basis.

In effect, these structures get extra ratings credit by converting the collateral value of the aircraft into reduced default risk for the rated securities, rather than better recovery prospects after a default.

Higher ratings can be assigned to aircraft financings that are structured to allow creditors to use proceeds from the sale of collateral to repay principal and interest

on a timely basis. EETCs add a dedicated source of liquidity support to pay interest and tranche the debt to increase the likelihood of repaying principal on the securities that have been rated higher than the airline's (unenhanced) equipment trust certificate rating. For U.S. financings, which is the principal market for these deals, the liquidity facility must cover 18 months of debt service (typically interest only) and the tranching debt can achieve ratings up to three full rating categories (e.g. 'BB' to 'AA') above the airline's Section 1110 unenhanced equipment trust certificate rating.

To qualify for this rating treatment, a security based on obligations of a U.S. airline must:

- Qualify for protection under Section 1110 of the U.S. Bankruptcy Code (see above); and
- Have a dedicated source of liquidity, such as a letter of credit, committed credit facility, or cash collateral account sufficient to cover 18 months of debt service on the rated securities, if the aircraft financing is rejected in bankruptcy proceedings (or, conceivably, by mutual agreement outside of bankruptcy).

Inasmuch as an airline would owe any interest that has accrued following the last scheduled payment, whether that comes due before or after a bankruptcy filing, the liquidity facility in practice would cover between about 12 months (if the filing occurred one day before a scheduled payment, which are typically semiannual) and a full 18 months (if the filing occurred one day after a payment date) from the date of filing for bankruptcy.

Rating Financings of Non-U.S. Airlines

The EETC approach may be feasible for constructing aircraft financings by airlines outside of the U.S., as well. Standard & Poor's has examined a number of proposals of this type, though only one (financing several widebody aircraft leased to Qantas Airways Ltd.) has been assigned a rating as of this writing. The most important analytical issues in these cases are legal ones:

- Does the prevailing legal jurisdiction recognize clearly the rights of lessors or secured creditors to repossess collateral? How many comparable precedents can be cited in that jurisdiction?
- How quickly can lessors or secured creditors act to enforce their rights? While the U.S. Bankruptcy Code is generally less favorable to creditors than those of some other nations, Section 1110 is an exception, with its clear 60 day limit on suspension of equipment debt service.
- If creditors must await resolution of insolvency proceedings, how long is that likely to take? This could represent an additional period which the dedicated liquidity facility must cover, which in turn has implications for the effective loan-to-value available to EETC holders.

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- To the extent that a flag carrier is given credit for potential support from the government of that country, would this same national interest work against the interests of equipment creditors? Recovery of aircraft could be delayed in such cases by legal maneuvers or pressure from government authorities.

To the extent that rights of repossession and their application in practice are less clear than in the U.S., Standard & Poor's is likely to limit the potential upgrade above an airline's relevant equipment debt rating to less than the three full categories possible for U.S. airlines. The asset value analysis, and thus target loan-to-values for various upgrades, would not differ from that for an U.S. financing, however.

There are ways to help meet these concerns with the structure, particularly as regards the liquidity facility:

- A longer liquidity facility (though that must be balanced against its effect on collateral recovery for certificateholders);
- Subordination of liquidity facility repayment to some or all of the certificateholders—a considerable advantage if it can be arranged;
- Alternatively, stretching out the repayment period for the liquidity facility, so that it can withstand a rescheduled lease obligation; and
- Backstop guarantees of repossession by a highly rated party, which would pay off certificate-holders if the plane is not recovered within a defined period, and then take over the creditors' security interest.

Aircraft prices and lease rates have historically been quoted in dollars, no matter where the operating airline was domiciled. All EETCs rated to date have been dollar denominated, preventing any currency mismatch. However, airlines outside the U.S. generate most of their revenues in currencies other than the dollar, and often would prefer to raise debt in those currencies. Since the potential divergence in exchange rate between the dollar and any other currency (excluding, perhaps, those currently pegged to the dollar) over a period up to 20 years or more is huge, that exposure would in most cases have to be covered with a currency swap or similar arrangement.

With the launch of the euro, Airbus has begun quoting aircraft prices when requested in euros, as well as dollars, and Boeing will likely follow suit at some point. While this eases the potential currency mismatch in a Euro-denominated EETC, it does not eliminate the problem. Even if every European airline were to immediately conduct its aircraft transactions entirely in euros, the universe of potential buyers paying in euros for a repossessed aircraft would be only about one third of the current world market (the European Union generates about one third of world traffic). Thus, resale and release liquidity for aircraft collateral would be considerably less than is currently the case for dollar-denominated EETCs. Accordingly, the extent to which the Euro becomes an alternative currency for aircraft transactions, which may well vary from model to model, will be considered in rating any potential euro-denominated EETC.

The Role of Aircraft Collateral in EETCs

Rating upgrades above the airline's unenhanced equipment trust certificate rating will be assigned to qualifying securities based on an evaluation of asset value risk, given the aircraft being financed and the amount of debt raised. Asset risk in EETCs and in aircraft portfolio securitizations are judged on the same factors (*see following section*). The analytical result of that judgment is expressed as target loan-to-values for specified rating upgrades in the case of EETCs and as reductions in aircraft value or lease rates to be used in cash flow modeling in the case of portfolio securitizations.

Because the industry conditions in which an investment grade airline would fail are likely to be more unfavorable than those for speculative grade airlines, the market value declines (and thus loan-to-value ratios) that are assumed are slightly more conservative (up to 5% lower required loan-to-value at the maximum potential rating enhancement) for airlines whose Section 1110 rating is in the 'BBB' category. Standard & Poor's has not yet rated an enhanced ETC for an airline whose Section 1110 rating is in the 'A' category, but market value decline assumptions in that case would be more conservative still.

In the simplest case, for one or more new technology planes of a single model financed in a typical enhanced ETC structure, upgrades would be assigned based on the levels of loan-to-value ratio (the amount of rated debt as a percentage of collateral value) as follows:

- A range of 62-66% for a one category upgrade,
- A range of 44-51% for two categories, and
- A range of 26-36% for three categories, depending on the particular aircraft model and the Section 1110 rating of the airline.

Rating enhancements falling between the full upgrade levels specified above are possible, with the loan-to-values required interpolated between the levels shown (approximately 5% for each notch). When any of the factors affecting asset risk depart from a simple case such as this, the guideline loan-to-values also change. Examples of several actual EETCs, with loan-to-values on senior tranches of debt, are shown in "Aircraft Asset Risk Evaluation", below.

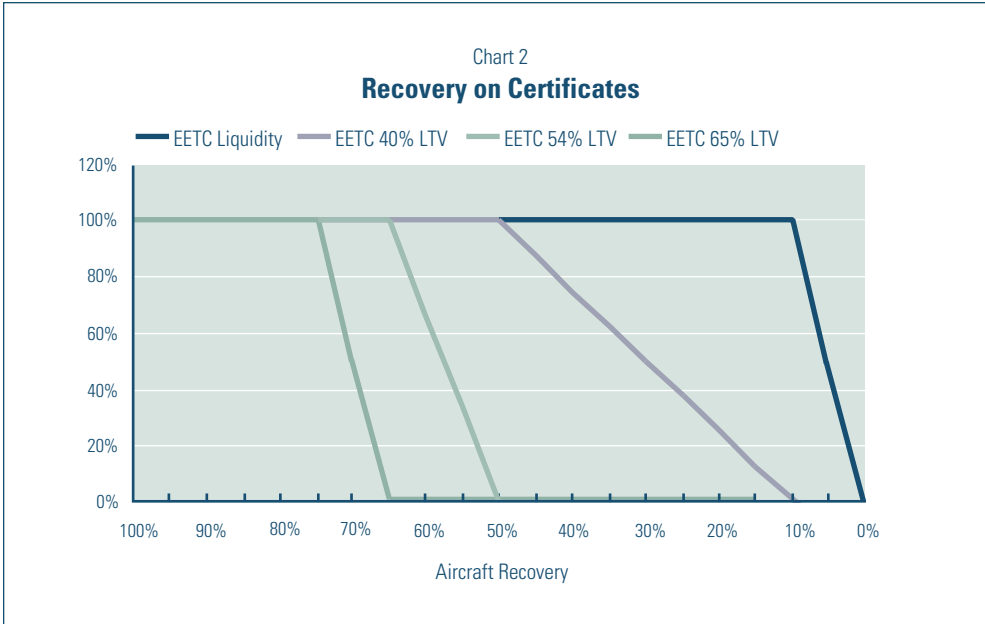
The required loan-to-values resulting from estimated asset risk can be seen in table 2. The table shows the loan-to-values of the senior ('A' class) certificates for the transactions listed in table 1 (need to attach), and how they compare with the "standard" case.

The criteria assume the provider of the dedicated liquidity facility would have first claim on proceeds from sale of collateral, and the guideline loan-to-values are sized to account for that arrangement, as long as 18 months of scheduled interest payments do not exceed 10% of collateral value throughout the life of the transaction. Repayment of advances to cover scheduled principal payments do not cause a like

issue for overcollateralization levels, since they represent only a change in the recipient (that is, repayment is to the liquidity provider instead of the bondholders), not the amount owed. Liquidity facilities for EETCs typically do not cover scheduled principal payments.

The investor should be aware that, while the chance of default on an enhanced ETC is typically less than that on a simple, unenhanced aircraft financing, the recovery on the enhanced ETC declines more rapidly with a deterioration in asset values. For example, a junior tranche of an enhanced ETC might represent \$10 million of an \$80 million financing and have a loan-to-value of 70% on the \$100 million aircraft value. The value of the aircraft could decline to \$70 million without causing any shortfall to these certificateholders (ignoring, for simplicity, the claim of the liquidity provider). However, that junior certificate bears all of the impact of the next \$10 million decline in asset value, so that the certificateholder receives no recovery of principal by the time the asset value has declined to \$60 million.

This relationship is shown in more detail in chart 2, which shows the range of potential recovery for each class of certificates and for the liquidity provider in a multi-tranche enhanced equipment trust certificate. The most junior tranche (at a 65% loan-to-value ratio) begins to fall short of full recovery first, and declines rapidly with further deterioration in collateral value. The other tranches suffer the same fate, in order, as greater declines in collateral value are assumed, with the liquidity provider being affected only when the asset recovery is less than 10% of the expected value.



Role of the Liquidity Facility

The 18-month liquidity facility is crucial to the U.S. EETC structure because it provides time for bondholders to repossess and sell aircraft collateral in an orderly fashion and realize proceeds to cover outstanding principal. The 18-month period was chosen based on a study of aircraft sales following liquidation of entire airline fleets (for example, the case of Braniff Airways Inc. in 1983). Although resale of used aircraft has sometimes taken longer than 18 months, that period still allows a reasonable amount of time to seek buyers, even in depressed markets. The liquidity facility would also cover pre-bankruptcy accrued interest and any payments on the rated securities that happen to fall into the 60-day grace period following a bankruptcy filing, before accrued rentals and or debt payments under Section 1110 must be cured.

The provider of the liquidity facility must have a short-term debt rating at least consistent with the highest rating sought on the relevant EETC. For example, a short-term rating of 'A-1+' would be needed for EETCs rated 'AA-' or above. The short-term rating of the liquidity provider must, in any case, be at least 'A-1'. If the liquidity provider were to be downgraded below the level required on EETCs it supports, it must either find a suitably rated replacement provider or fund a cash collateral account with the full amount committed. If the liquidity provider were unable to do that (which is contractually required in the liquidity agreements) the affected EETCs would likely be downgraded.

The first instance in which a liquidity facility downgrade affected EETCs occurred in June 1999, when KBC Bank N.V. was downgraded to 'AA-'/ 'A-1+' to 'A+'/'A-1'. KBC provided liquidity facilities supporting four EETCs. In two cases—one for certificates issued by Federal Express Corp., where the senior tranche of debt was rated 'AAA', and another for certificates issued by Continental Airlines Inc., where the senior tranche was rated 'AA+'—KBC Bank was replaced as liquidity provider. In two other cases—where the senior tranche was rated 'AA-' (issued by America West Airline Inc. and American Trans Air Inc.)—Standard & Poor's determined that the differential between KBC's revised long-term debt rating of 'A+' and the EETCs rated 'AA-' was small enough that ratings were affirmed and no replacement of the liquidity provider was necessary.

Legal Considerations for EETCs

The securities in EETC transactions already rated have been various classes of either pass-through certificates issued by various pass-through trusts that hold corresponding series of equipment notes or debt securities issued by a single trust that holds all of the equipment notes. In the case of pass-through certificates, the legal considerations discussed above for equipment notes and pass-through trusts are relevant.

If the rated securities are debt securities issued by a single trust, the same legal considerations are relevant, except that the review of the ownership of the issuing trust usually results in the identification of additional risks to be addressed in the legal opinions. In this respect, the analysis of the issuer is more like the analysis of the trust that is the nominal issuer of equipment notes. In addition, if the EETCs are debt securities, legal opinions will be required confirming the validity and enforceability of the securities and that the noteholders have the benefit of a first priority perfected security interest over the equipment notes and any other trust property.

If the underlying equipment financings in a proposed EETC transaction include Japanese or other cross-border leveraged leases or other “double dip” features designed to obtain tax benefits for investors in more than one country, the analysis must conclude that cash flows would not be interrupted and the EETC-holders’ rights would not be compromised on account of these features, or in the event of the bankruptcy of any equity investor or other party to these arrangements. Transaction counsel should conduct, or coordinate, the due diligence investigation, including legal advice in the relevant jurisdictions, necessary to support these conclusions. Standard & Poor’s will review the results of this due diligence. Certain risks that have been identified in traditional Japanese leveraged leases and some other hybrid forms of equipment financing are discussed below under “Special Considerations for Bank Loan Portfolios—Legal Considerations.”

As discussed above, debt tranching to achieve various overcollateralization levels and a dedicated liquidity facility to maintain payments on the rated securities during the projected repossession period are required to achieve enhanced ratings. Typically, debt tranching is achieved through consensual subordination in an inter-creditor agreement among the issuers, or issuer, of the rated securities, the liquidity provider, and a subordination or collateral agent. Subordination agreements are expressly recognized under the U.S. Bankruptcy Code. If, even in an issuer’s bankruptcy, none of the parties to the subordination agreement could negate the effect of the subordination provisions, then there would be a greatly diminished incentive to commence bankruptcy proceedings against an issuer. The effectiveness of the subordination provisions thereby also supports the conclusion that an issuer is a bankruptcy-remote entity.

Legal opinions are also required confirming that the inter-creditor agreement is enforceable under its governing law and against the parties to the agreement. If the governing law is not a U.S. jurisdiction, generally an opinion is required confirming that the subordination provisions will be enforceable even in an issuer’s bankruptcy. A legal opinion also should confirm that the equipment notes held by the subordination or collateral agent on behalf of the parties to the inter-creditor agreement would not be considered property of the agent if it were to become insolvent.

For rated EETCs, dedicated liquidity facilities have been in the form of committed credit facilities, cash collateral accounts, and letters of credit. Legal opinions are required confirming that the liquidity facility is enforceable under its governing law and against the liquidity provider. If the liquidity provider is not a U.S. bank, an opinion is required confirming that the liquidity provider's obligations are at least the same priority as its unsecured and unsubordinated debt. For non-U.S. liquidity providers, the legal opinions should address the recognition of the choice of law in the agreements, the submission to jurisdiction clauses, and the enforceability of U.S. judgements.

The legal review for EETC transactions frequently is a time-consuming part of the total analysis and should start as early as possible. In the case of non-U.S. EETCs, a more general review of the relevant legal jurisdictions (including any conflicts of laws analysis, if necessary) as applied to the underlying equipment note financings and the securitization structure would require additional time. The jurisdictional legal review usually can proceed in parallel with the economic analysis on the basis of a detailed term sheet or transaction summary and the relevant jurisdictional surveys.

Aircraft Asset Risk Evaluation

Standard & Poor's evaluates aircraft collateral in aircraft securitizations and EETCs using a scoring system that covers the following factors:

Technological Risk. What is the risk that the aircraft will become economically unattractive during the term of the financing due to advances in technology or regulatory change? Examples of technological risk include aircraft which do not comply with noise regulations being phased in the U.S. and Europe, and the accelerating replacement of some types of turboprop regional aircraft by regional jets. Typically, the more recently the aircraft model was introduced and the shorter the term of the transaction, the less technological risk is perceived.

Market Liquidity. How liquid is the resale market for this type of plane likely to be in the future? Analysts will look at the number of planes in service and on order, the number of operators, and the breadth of the manufacturer's product line, among other factors. Narrowbody aircraft are typically considered to be slightly more liquid, other things being equal, than widebody aircraft.

Diversification by aircraft type. If the pool of assets being financed consists of multiple types of planes, the risk of very weak resale values is somewhat reduced, since movements of aircraft values are not fully correlated. Again, analysts will look not only at how many models of planes are in the pool, but also how different each is from the others. Thus a pool consisting of one narrowbody and one widebody would usually be judged more favorably on this factor than a pool of two narrowbodies.

Manufacturer evaluation. How strong is the market presence of the manufacturer of the aircraft being financed? How broad is its product line and what are the prospects for those products? Is there any diversification of manufacturers in the pool being financed? The highest scores here are given to the two leading manufacturers of large jet transports, Boeing Co. and Airbus Industrie.

Servicer Evaluation. Is there an active manager of aircraft leases or a dedicated remarketing agent (as is typical in multi-airline securitizations)? How capable and experienced is that manager? The large providers of aircraft operating leases, International Lease Finance Corp. and the General Electric Capital Aviation Services (GECAS) unit of General Electric Capital Corp., have been assigned the highest scores on this factor. For EETCs, there typically is no dedicated manager or resale agent.

Other Factors. Will the plane be operated in relatively favorable or difficult conditions? Is the maintenance likely to be performed to high standards? Is the user going to configure the plane in a way which would require expensive alterations before another airline can use it? Are there any other factors which could affect materially the plane's resale value?

Table 1
Asset Risk in Aircraft Financings

	Aircraft Collateral	Technological Risk	Market Liquidity	Aircraft Diversity	Manufacturer Evaluation	Servicer Evaluation	Other Factors
America West Airlines Inc. 1997-1	4 A320	Modern technology aircraft financed for up to 20 yrs.	Popular, liquid aircraft	None (single model)	Major manufacturer	None	Major airline in developed country
Airplanes Pass Through Trust	229 aircraft of 30 models	Mostly modern technology aircraft; risk higher in later stress scenario	Mostly liquid models, but some less so	Very diverse portfolio	Generally reflects world, portfolio, but Airbus under-represented	GE Capital Aviation Services—top tier operating lessor	Mix of airlines in both developed and less developed countries
Federal Express Corp. 1997-1	4 MD11F, 5 A300-600F	Modern technology, but slightly higher risk than new models	Below average liquidity	Modest diversity (1 small, 1 midsize widebody)	Airbus and McDonnell Douglas (now Boeing)	None	Major airline in developed country
Continental Airlines Inc. 1997-1	8 B757-200, 22 B737-500	Modern technology aircraft financed for up to 20 yrs.	Popular, liquid aircraft	Modest diversity (1small, 1 midsize narrowbody)	Major manufacturer	None	Major airline in developed country

The foregoing factors are evaluated and weighted in the approximate order listed to judge the likely severity of market value declines in a repossession scenario. Table 1 shows four aircraft financings rated in 1996 and 1997 and comments on the above asset risk factors for those transactions. Table 2 shows how the asset risk evaluation, combined with the airlines' underlying credit quality combine to produce target loan to values needed to achieve high ratings.

Aircraft Appraisals

Underwriters of an EETC, as well as for other aircraft transactions, are typically required to arrange for "desktop" (i.e., without physical inspection) appraisals from three recognized appraisers. The resulting appraisals provide an estimate of base value, which is supposed to represent the long-term value based on various restrictive (and optimistic) assumptions. Typically, the value used for purposes of calculating an initial loan-to-value ratio would be the lesser of the average or median of the three appraised base values. Standard & Poor's realizes that these appraisals are often somewhat inflated relative to actual market transactions and has factored this into the loan-to-value guidelines. Further, analysts can and have used lower values than the appraised base values in their analyses, sometimes setting aside appraisals believed to be less plausible.

Depreciation Assumptions

The specified levels of overcollateralization must be maintained throughout the life of the rated security, with debt paying down in proportion to the declining aircraft value. For transactions involving recently delivered, modern technology aircraft Standard & Poor's has used the following depreciation schedule:

- For years 1-15, 3% per year;
- For years 16-20, 4% per year;
- For years 21-25, 5% per year; and
- For the residual at end of year 25, 10%.

	'A' certificate initial loan to value ratio (%)	Rating	Upgrade above ETC rating
America West Airlines Inc. 1997-1	40	AA-	+2 2/3
Airplanes Pass Through Trust	64	AA	n.a.
Federal Express Corp. 1997-1	40	AAA	+2 1/3
Continental Airlines Inc. 1997-1	40	AA	+3

n.a. not applicable

This depreciation schedule is not a prediction of future prices, but an approximate trend line from which assumed market value declines are applied. It incorporates the interaction of economic depreciation of the asset and the partly offsetting effect of increasing prices for new planes, which indirectly influence the market price of older aircraft. The depreciation curve reflects also the fact that the range of possible aircraft values will widen over time given increasing uncertainty. Therefore, while the difference in value between a new plane and a one-year-old used plane is probably greater than a single year's 3% depreciation, it is also less likely that aircraft values would fall sharply in the near term.

For planes embodying older technology or which have other adverse asset risk factors, assumed depreciation would be more rapid. Further, if the aircraft being financed were delivered years earlier, the depreciation rates must be re-sized to account for the difference between original delivery value and current value. For example, if a plane is 10 years old, the analysis would assume that its expected value would be about 70% of original delivery value. In order to calculate depreciation going forward from that point, one must account for the fact that the new base value is only 70% as large as the original one, and the depreciation schedule above calls for a decline in year 11 of 3% of the original value. The adjusted depreciation rate would therefore equal about 4.3% of the current value ($3\%/0.7 = 4.3\%$) for year 11. One can calculate similar adjustments for all combinations of aircraft age and depreciation rate going forward.

For freighter aircraft, which fly fewer cycles (takeoffs and landings) and fewer hours than passenger aircraft, the depreciation assumptions are more generous. New freighters would generally be assumed to depreciate 3% per annum over 30 years to a 10% residual. Freighters converted from passenger planes will be judged on a case by case basis. Regional aircraft would generally be considered to have a shorter economic life and the depreciation schedule is therefore somewhat more conservative.