A Credit Risk Perspective on Aircraft Engine Investments - Aviation Finance

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Engine leasing is a global asset class that provides credit risk diversification across jurisdictions, protecting against local downturns. Every portfolio is differently structured, however. It is vital for investors to understand the credit risk factors that impact the expected loss of the engine investment in question.

The bottom line for any creditor is working out how much of their investment they can expect to lose. In other words, the potential size of any loss is more important than the likelihood of there being a loss in the first place. Scope Ratings uses the expected-loss approach to analyse the credit risk of transactions secured by aircraft engines.

Factors influencing credit risk in an engine securitisation or portfolio investment are closely related to factors influencing credit risk in an aircraft portfolio investment. However, there are specific risk factors that are more critical when considering an investment in engines.

Awareness of engine-specific risk factors is vital to ensuring a sound investment and protection against losses. There are several credit risk factors in an engine securitisation or an investment in an engine portfolio. And a number of risk factors impact on the expected loss of an engine portfolio, assessed below, which give an indication of credit-related risks investors should consider before investing into transactions secured by engines.

Figure 1: Simplified credit risk factors in engine transactions

Source: Scope Ratings

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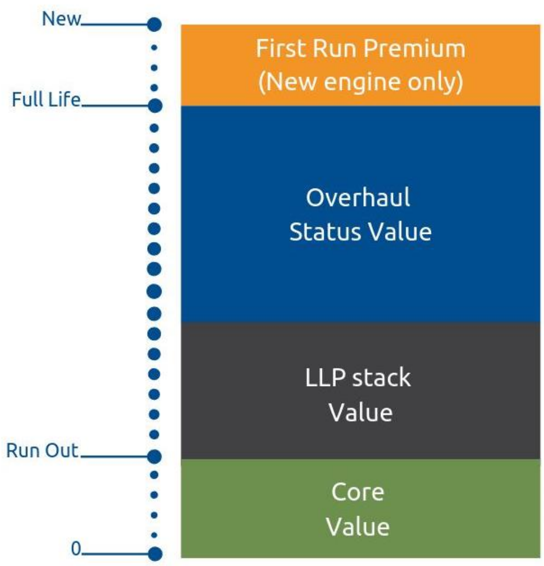
The quality of the engine portfolio directly impacts the expected loss

Given that the engine is the security in the case of a default of the operator, credit analysis requires a strong focus on the engine value. The higher the value of the engine at the time of default, the lower the expected loss to investors. Contrary to aircraft, engines are not necessarily a depreciating asset. The value of an engine after a complete maintenance event can be the same as the value of a new engine. In certain instances, the value can increase over time if the list price of a new engine and the value of the Life Limited Parts (LLP) escalates. What determines the value of an engine is largely its maintenance condition. Ascend by Cirium reports that the maintenance condition can account for 90%+ of the engine value. Investors must consider the large value difference between a fully-maintained engine and that of a run-out engine when calculating the expected loss.

Investors should question if mitigating elements against the maintenance condition risk of the engine such as maintenance reserves and triple-net leases are in place. A triple-net lease stipulates that the operator is responsible for bearing the costs in relation to the maintenance of the engines. Maintenance reserves are stronger risk mitigants than a triple-net lease, as maintenance reserves will also be available in the case of default. If maintenance reserves are paid and the engine is on a triple-net lease, the stresses applied to the value can be lower. Stresses to the value must be applied to determine the credit-risk level when calculating the expected loss of the transaction.

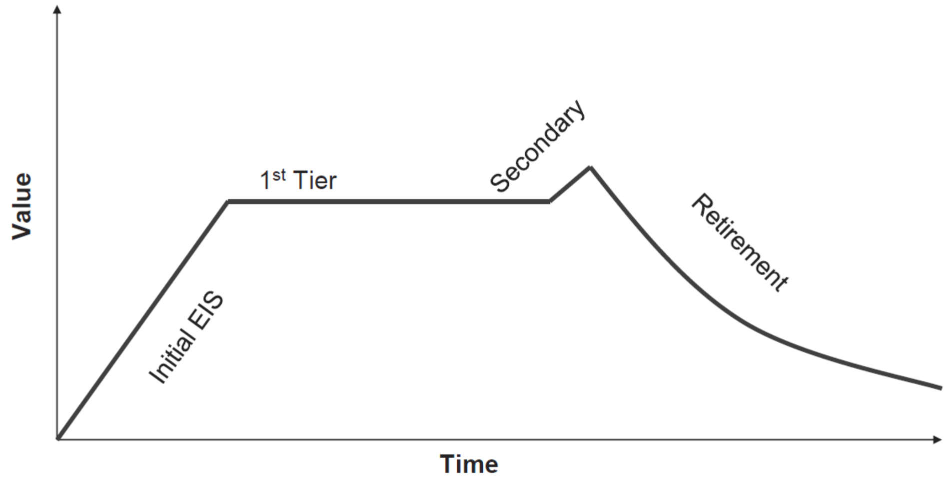
Figure 2: Engine value breakdown



Source: Ascend by Cirium

The engine's life-cycle also impacts the value of the engines in the portfolio. A model that is going out of production has a higher credit risk than an in-production first-tier engine. The quality of the engine portfolio relates to where in the engine life-cycle the engines in question are. Investors should also keep in mind that an engine can migrate from one cycle-phase to another. If the engine is currently in the secondary phase as portrayed in Figure 3, it can migrate to the retirement phase during the lifetime of the transaction. This will increase the expected loss of the last period of the transaction compared to the first, unless the debt tranche amortises faster than the engine value depreciates.

Figure 3: Engine value life cycle



Source: Ascend by Cirium

The quality of the portfolio is strongly correlated to the maintenance condition of the engines and the engines' life cycle. Maintenance condition risk can be partially mitigated by the asset manager involved in the transaction. The life-cycle cannot be controlled by the asset manager. The life-cycle of the engines in the portfolio and potentially future migrations to other life-cycle phases must therefore be carefully considered before entering into a transaction.

Another important risk factor impacting the credit risk level of the portfolio is the market liquidity for the engine type. Engines that are highly sought after in the market with a strong operator base are more liquid than engines that can only be installed on niche aircraft with a low number of operators.

When possible, Scope also considers the jurisdiction in which the engine is deployed when determining the credit risk of an engine transaction. The repossession time assumption differs from jurisdiction to jurisdiction. Factors such as insolvency laws, export rights, political environment and de-registration rights among others influence how fast and at what cost an engine can be repossessed and put up for sale or on a new lease. The faster the value can be capitalised through a sale or re-lease and the lower the cost of this process, the lower the expected loss to investors.

The basis of portfolio investment is diversification. The higher the diversification in the portfolio the lower the credit risk. Scope considers the quality of the portfolio to be higher if the risk is spread among several different engine models, different year of build, a combination of older and new technology (different life-cycles) and a diverse set of operators.

An experienced asset manager decreases the credit risk

Asset managers are key to an engine portfolio. Aircraft-engine portfolios are typically managed portfolios. During the transaction tenor, the engine can be re-leased several times. The asset manager must be equipped to transition the engines to new lessees, take care of the maintenance status and sell the engine if the time is right. The experience and track record of the asset manager is therefore critical. A strong, experienced asset manager decreases the credit risk of the transaction.

As the aviation industry is inherently cyclical, lessee defaults can occur. In such instances, the asset manager must be prepared to repossess the engines in question. Lessee default is a major risk factor in engine leasing as tracking and locating the engine in a case of default can be challenging. Engines can be swapped between aircraft and therefore also be flying in different jurisdictions than the ones reported. In the past, there have been incidents where an airline has defaulted, and the aircraft repossessed by the lessor has had engines on wing belonging to another creditor. Investors should evaluate if the asset manager is sufficiently positioned to decrease repossession risk.

What the asset manager can do to decrease repossession risks:

1. Close relationship with the operator, regular exchange of information
2. Regular inspections – available for leases only
3. Recording and tracking of engine serial numbers and their location
4. Monitoring debtor financial health and taking early action if warning signs appears

Source: Ascend by Cirium

Credit risk decreases if the asset manager is experienced with the engine model in question. It decreases further if the asset manager has technical capabilities in-house to deal with engine maintenance in the case of default of the operator.

Investors should also analyse the asset manager's alignment of interest in the transaction. Alignment of interest discourages the asset manager from discriminating against the engines in the securitisation against same-model engines on their own balance sheet or in other portfolios they manage.

Scope analyses a number of factors when determining the quality of the asset manager of an engine portfolio:

Investor consideration of the asset managers capabilities:

5. Historical track record
6. Experience of the asset manager and key employees
7. Technical capabilities of the asset manager
8. Experience with specific engine models
9. Asset manager's network
10. Alignment of interest

Source: Scope Ratings

Credit risk related to the transaction's structure

Seniority of the invested capital is the largest credit risk driver in regard to the structure. If the invested capital is the first-loss piece, the expected loss is highly driven by the engine value. The credit risk is lower if the invested capital holds the senior position sitting above several subordinated tranches.

The seniority is also related to the Loan-to-value (LTV) of the invested tranche. It is important to monitor the LTV to make sure the investment amortises in line with the depreciation of the underlying portfolio. Preferably it should amortise more rapidly to create growing collateral support to decrease credit risk even more. The credit quality of the obligors also drives a transaction's expected loss. A very strong airline credit profile can compensate for higher loss-given default upfront if the amortisation profile is aggressive. In comparison, a weaker airline credit profile calls for a more conservative LTV.

Credit enhancements such as liquidity reserves available in case of a repossession or maintenance event decrease the expected loss for the investor. Liquidity reserves can be deployed to prevent a loan default if one of more engines are off lease. Over-collateralisation, residual value guarantees, and liquidity reserves are a few examples of credit-enhancement mechanisms that will lower the credit risk of a transaction.

No transaction is risk free and it will not realistically be possible to mitigate all the risks highlighted above in the same transaction. The risk factors mentioned are some of those the investors should pay special attention to when investing in an engine portfolio. An investment can be sound even if several of the risks are present. It is important that the investor can appropriately determine the level of risk of the investment, to evaluate if the transaction has an appropriate risk-return balance. The investment yield should add up to the expected-loss of the transaction, margin and interest.

All investments involve risk and the yield should incorporate those risks. From a credit-risk perspective, there are several advantages of engines as an asset class notwithstanding the inherent risks. Engines are movable assets and can in theory be deployed in any jurisdiction. This decreases the risk of a local downturn impacting all engines in a portfolio.

Further, if we see a downturn in Europe resulting in airlines defaulting, the engines can be moved out of Europe to other continents with a stronger market environment at the time. Currently, the aviation industry has low competition from substitute asset classes. High-speed trains can compete against aviation across shorter distances, but with long-haul travel, aircraft is the only viable option.

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