

UNIVERSIDAD PONTIFICIA COMILLAS

ESCUELA TÉCNICA SUPERIOR DE INGENIERÍA (ICAI)

GRADO EN ADMINISTRACIÓN Y DIRECCIÓN DE EMPRESAS (ADE-MUII)



**COMILLAS**  
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EMPRESAS [GR E-2 15] – (ADE-MUII)

TRABAJO FIN DE GRADO

**STRUCTURED FINANCE: ASSET-BASED  
FINANCING VIA TAX LEASE IN THE AVIATION  
INDUSTRY**

Autor: Eduardo Pérez Arévalo

Director: Javier Lamo Cárcamo

Madrid

## STRUCTURED FINANCE: ASSET-BASED FINANCING VIA TAX LEASE IN THE AVIATION INDUSTRY

**Resumen:** La primera parte del proyecto proporciona una visión teórica de las finanzas estructuradas, que involucran diversas técnicas financieras especializadas diseñadas para gestionar necesidades y riesgos complejos de financiamiento. Los principales tipos incluidos son los Leveraged Buyouts (LBOs), Project Finance, Asset Finance y Securitization. En segundo lugar, el proyecto incluye un análisis de caso detallado centrado en la financiación de activos. Esta evaluación examina tanto los arrendamientos financieros como los arrendamientos fiscales. El análisis destaca cómo invertir en capital a través de una Special Purpose Vehicle (SPV) para adquirir una aeronave, que luego se arrienda a una empresa como Iberia, puede generar valor. Esto se logra mediante las ventajas fiscales de la depreciación acelerada, que, al descontarse al valor presente, resulta en un Valor Actual Neto (VAN) positivo.

**Palabras Clave:** Financiación Estructurada, Financiación de Proyectos, Financiación de Activos, Titulización, Arrendamiento Financiero, Arbitraje Fiscal, Arrendamiento Fiscal, Leasing, Modelado Financiero, Depreciación, Industria Aeroespacial.

**Abstract:** The first part of the project provides a theoretical overview of structured finance, which involves various specialized financial techniques designed to manage complex funding needs and risks. The main types included are Leveraged Buyouts (LBOs), Project Finance, Asset Finance and Securitization. Secondly, the project includes a detailed case analysis focusing on asset finance. This evaluation examines both finance leases and tax leases. The analysis highlights how investing in equity through a Special Purpose Vehicle (SPV) to acquire an aircraft, which is then leased to a company like Iberia, can create value. This is achieved through the tax advantages of accelerated depreciation, which, when discounted to present value, results in a positive Net Present Value (NPV).

**Keywords:** Structured Finance, Asset Finance, Project Finance, Securitization, Finance Lease, Tax Arbitrage, Tax Lease, LTV, Leasing Company, Excel Modeling, Depreciation, Aircraft Financing.

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## 1. Introduction

### 1.1. Motivation

The decision to focus on asset-based financing in the aircraft industry is driven by my interest in structured finance and my background in engineering, which makes the intersection of financial and technical aspects particularly compelling. Asset-based financing, especially within the aviation sector, offers a unique opportunity to explore complex financial structures that are crucial for managing high-value, capital-intensive assets. The significance of asset financing has become even more apparent in the wake of global events such as the COVID-19 pandemic, which underscored the vital role of robust financial mechanisms in maintaining industry stability and liquidity. This situation has highlighted the importance of understanding these financing strategies, an area often overlooked but crucial for the resilience of the aviation sector.

In addition, a notable trend in Spain's transportation sector is the liberalization of the rail market, which is introducing new players and opportunities for asset-based financing techniques. This shift highlights the growing importance of financial strategies in sectors previously dominated by monopolistic entities like Renfe not very sophisticated financially. The evolving market dynamics emphasize the relevance of asset-based financing and its application in adapting to new challenges and opportunities in various industries.

### 1.2. Scope of the Study

The primary goals of this study are to develop a thorough understanding of asset finance and financial modeling in the context of aircraft financing, and to prepare for a career in structured finance. The study will focus on the following objectives:

- **Gain comprehensive understanding of Structured Finance structures, deepening on Asset Financing and its Financial Modeling for the Aviation Industry:** This objective aims to master the creation of accurate and flexible financial models that are essential for aircraft financing. The study will delve into complex aspects related to projections and modeling, ensuring that the models are both practical and theoretically sound. By developing these skills, the study aims to provide a solid foundation in financial modeling applicable to the aviation industry.
- **Understand Risks and the Key Variables and Drivers in Aircraft Financing:** An important part of this research is to identify and analyze the various risks associated with asset finance in the aviation industry. This includes financial, operational, and market risks. Additionally, the study

will examine key variables that impact the success and viability of aircraft financing, such as funding sources, revenue streams, and cost management. The goal is to use this knowledge to develop effective strategies for mitigating these risks while maximizing profitability.

- **Integrate Finance with Legal and Tax Aspects:** The study will explore the intersections between finance and legal/tax considerations, particularly focusing on capital leases or tax leases for aircraft financing. The use of Special Purpose Vehicles (SPVs) will be examined to understand how tax benefits can be maximized and how legal structures can impact financial arrangements.
- **Prepare for a Career in the Sector:** The study aims to build expertise in structured finance that will be directly applicable to a future career in this field. This includes gaining in-depth knowledge of asset finance, financial modeling, and the legal and tax aspects of financing structures.

One of the critical aspects of asset-based financing is the **management of asset depreciation**. Understanding how different financing structures handle depreciation is crucial, as it affects both the financial viability of the project and the tax implications. Effective management of asset depreciation can lead to significant tax benefits and impact the overall cost of financing.

Another important consideration is the evaluation of various asset financing products. Each technique, whether it is a mortgage loan, a finance lease, or an operating lease, offers different benefits and limitations. It is essential to understand how these techniques can be utilized to **manage capital-intensive assets effectively** and to adapt financing structures to the specific needs of the aviation industry.

### 1.3. Methodology

The theoretical framework for this study will be developed using a combination of online resources and key texts such as "Structured Finance: Leveraged Buyouts, Project Finance, Asset Finance and Asset Securitization" by Larreur (2021). This literature will provide foundational knowledge of structured finance principles, history, and key components. For the financial modeling section, the study will draw on existing research and the book "Corporate and Project Finance Modeling: Theory and Practice" by Bodmer (2014). This approach ensures that the financial models created are robust, reflecting real-world scenarios, and incorporating best practices from industry experts.

## 2. Structured Finance

### 2.1. Principles of Structured Finance

Structured finance encompasses a wide array of financial practices designed to meet the needs of large, complex transactions that go beyond the scope of traditional corporate financing methods. It involves the use of advanced techniques and products such as securitization, project finance, leveraged buyouts (LBOs), and asset finance, often facilitated through the creation of Special Purpose Vehicles (SPVs). The goal of structured finance is to **optimize capital structure, manage risk, and enhance returns by tailoring financial instruments and strategies to the specific requirements of a transaction.**

The use of SPVs became a common feature across various types of structured finance, enabling the isolation of financial risk and facilitating the involvement of multiple investors with differing risk appetites. However, the global financial crisis of 2008 highlighted the risks associated with overly complex and opaque structured finance products, leading to increased regulation and a renewed focus on transparency and risk management.

#### **Principles of Structured Finance**

Structured finance is underpinned by several key principles that apply across its various forms:

- I. **Risk management and redistribution:** Central to structured finance is the effective management and redistribution of risk. By pooling assets, liabilities, or equity interests, and segmenting them into different tranches with varying levels of risk and return, **structured finance enables the customization of financial products**, when having a defined perimeter, in the context of an acquisition or a capital structure optimization of a company or an asset, or in the context of the creation of tailored made complex financial products from illiquid assets or from some other financial assets (CLOs and CDOs). This approach allows for the alignment of specific financial needs with the appropriate level of risk tolerance among investors.
- II. **Special Purpose Vehicle (SPV):** The use of SPVs became a common feature across various types of structured finance, is a necessary feature across the different types of structure finance products and solutions, as it enables a legal **ring-fencing of the financial risk** and therefore, the financial structure is tailored to the specific risks of the product, and it also allows for the participation of multiples investors with different risk appetites, which can benefit of additional opportunities to invest their capital.



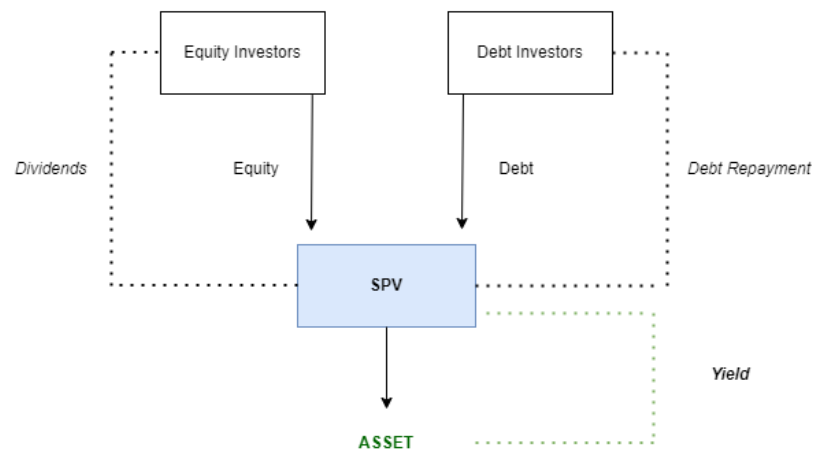


Figure 1. SPV: Dividends and Other Cash Payments.

- III. Capital optimization: Structured finance aims to optimize the capital structure of a transaction. This is often achieved through the layering of **different types of debt and equity, each with its specific risk-return profile**. For example, debt can be issued in different tranches (senior and junior/subordinated) for different classes of investors. Credit enhancement techniques, such as over-collateralization or third-party guarantees, are often used to improve the credit rating of securities issued by the SPV, thereby **reducing the cost of capital**.
- IV. **Tailored financial solutions:** Structured finance provides customized financial solutions that are specifically designed to meet the unique needs of complex transactions. Whether financing a large infrastructure project through project finance, acquiring a company via an LBO, or leasing high-value assets through asset finance, structured finance offers flexibility in terms of financing structures, leverage ratio, repayment schedules, and **risk allocation**.

## 2.2. Solutions involved

Structured finance is a versatile field that encompasses several key sectors, each of which employs specialized financial instruments and techniques to meet unique funding and investment needs. Here, we will explore four prominent sectors within structured finance: Leveraged Buyouts (LBOs), Project Finance, Asset Finance, and Securitization.

### A. Leveraged Buyouts (LBOs)

Leveraged Buyouts (LBOs) involve the acquisition of a company using a significant amount of borrowed money to finance the purchase. In an LBO, the acquiring entity (often a private equity firm) uses the target company's assets and cash flows to secure the necessary debt. The structure of an LBO is characterized by:

- High leverage: the use of high levels of debt to finance the acquisition is a defining feature of LBOs. This **debt is often backed by the target company's assets and future cash flows**. The goal is to achieve high returns while maximizing the amount of debt to be obtained to finance the acquisition, in order to be the most competitive bidder.
- Operational improvements: post-acquisition, the private equity firm typically focuses on improving the target company's operations to enhance profitability and cash flow. These improvements help service the debt and increase the value of the company.
- Exit strategy: the ultimate goal of an LBO is to exit the investment at a profit, usually through a **sale of the company or an initial public offering (IPO)**. The success of an LBO depends on the ability to **generate sufficient cash flow to serve the debt** until the exit of the sponsor and on the improvement of the company to achieve the biggest value at exit and obtained at least the desired profitability.

LBOs are prevalent in the **private equity sector** and are used to acquire mature, stable companies with strong cash flows.

In a Leveraged Buyout (LBO), a SPV known as **HoldCo** is often set up. HoldCo is essentially a shell company or an investment vehicle whose primary function is to facilitate the acquisition of the target company.

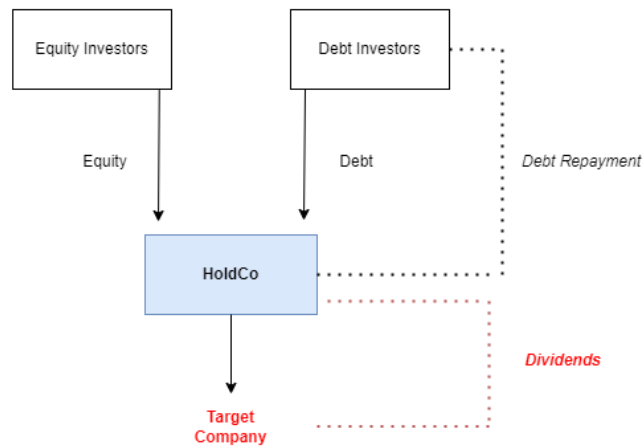


Figure 2. LBO Acquisition Diagram.

Here's how it works:

- **HoldCo structure:** HoldCo is created specifically to serve as the vehicle through which the acquisition is carried out. It does not have significant operations or assets of its own, beyond its stake in the target company. Its main purpose is to hold the equity in the target company and manage the acquisition process.
- Although **dividend payments** are considered in the figure, in an LBO deal, due to the high leverage, there is not enough return during the investment period. There could be **upstream cash flows** that are not directed to equity investors, but to repay existing debt.
- **Investment vehicle:** as an investment vehicle, HoldCo's role is limited to **holding and managing the shares of the target company**. It doesn't engage in any business activities or operations other than overseeing the investment and servicing the debt incurred to finance the acquisition.
- **Tax and financial considerations:** one significant advantage of LBOs is the **tax deductibility** of interest payments on the acquired debt. In an LBO structure, interest expenses on the debt used for the acquisition are generally tax-deductible, which can provide substantial tax benefits. This deductibility can reduce the effective cost of borrowing and improve the overall return on investment. Therefore, the HoldCo can be structured to optimize the tax benefits associated with the financing. To achieve this tax

advantage, a **push-down of the debt is usually needed from Holdco to Opco**. Fiscal Structuring is one of the most important issues when it comes to analyzing an LBO opportunity.

## B. Project Finance

Project finance is a method of financing large-scale projects based on the project's own cash flows rather than the sponsor's balance sheet. This approach involves several key elements:

- **Non-Recourse or limited recourse debt:** in project finance, lenders provide debt with little or no recourse to the sponsor's other assets. The source of repayment is the project's cash flows, and the project's assets are often used as collateral.
- **Special Purpose Vehicle:** an SPV is typically created to isolate the project's financial risks and manage the project's assets and liabilities. The SPV enters into contracts for construction, operation, and revenue generation, effectively separating the project's financial risks from the sponsor's broader business.
- **Long-Term contracts:** projects often involve long-term contracts, such as power purchase agreements, tolling agreements or availability payments, although this is not absolutely necessary. Financing entities often look for **predictable cash flows to service the debt**. These contracts are crucial for securing financing and managing project risks. The diagram is provided below, where it is illustrated how a financial and industrial sponsor collaborate by offering their respective expertise.

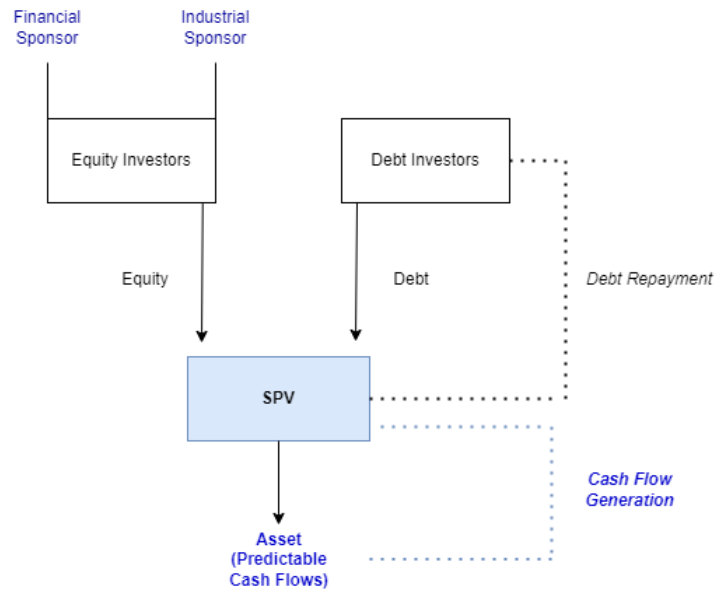


Figure 3. Project Finance Operation Diagram.

- Public-Private Cooperation:** project finance often involves collaboration between public and private entities to fund and develop infrastructure projects. This partnership leverages the strengths of both sectors, with the private sector providing capital, expertise, and efficiency, while the public sector offers regulatory support, permits, and sometimes initial funding. Public-private partnerships (PPPs) are common in sectors like transportation, energy, and water, where significant capital and expertise are required. **Concessions agreements** are also used, where a public entity grants a private entity the right to develop, operate, and maintain a public asset or infrastructure for a specified period. In return, the private entity often shares a portion of the revenues generated from the asset with the public sector.

Project finance is commonly used for infrastructure projects, such as power plants, toll roads, and large-scale construction projects, where significant capital is required, and the risks are high. It has **different phases** including development, construction and operation. While the project evolves, it improves its risk profile, permitting new debt solutions with better conditions which could be achieved by a refinancing at some point.

### C. Asset Finance

Asset finance is a broad term that encompasses various financial techniques used to acquire movable assets, such as aircraft or shipping vessels. These industries are known for their capital-intensive nature, making it crucial for operators to leverage financing options to manage their asset acquisition and usage effectively.

Typically, a third party, such as a financial institution or leasing company, acquires the asset. This approach allows operators in capital-intensive industries to avoid the significant required investment associated with purchasing such assets outright.

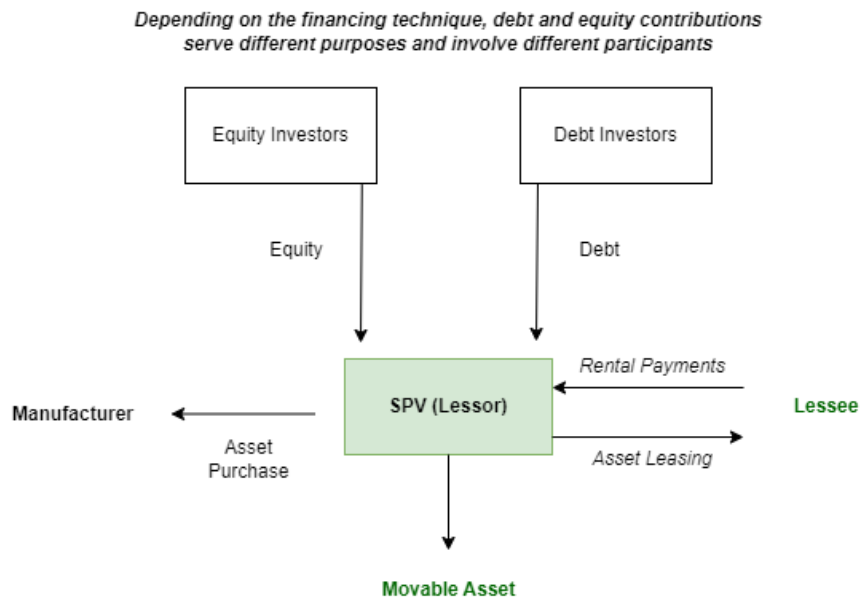


Figure 4. Asset Finance Operation Diagram.

While there are several techniques within asset finance, including **mortgage loans, capital leases, and operating leases**, the core principle remains consistent: a third party acquires the asset, and the operator of the asset rents or leases it. This arrangement benefits both parties in different ways:

- For the acquiring party: the third party, often a financial institution or the leasing company, earns revenues through rental payments which include interest charges on the financing provided. Additionally, they may benefit from **tax advantages related to asset depreciation**, which can further enhance their financial returns. **Sometimes, the financier is the manufacturer itself or a company affiliated with it, dedicated exclusively to financing these.**
- For the operator: the **asset operator avoids the large capital expenditure associated with purchasing the asset**. Instead, they lease or rent the asset, which allows them to access and utilize high-value equipment without the need for substantial upfront investment. This arrangement provides operational flexibility and financial liquidity.

## D. Securitization

Securitization is a financial process that involves converting illiquid assets (usually assets which are not homogeneous in their term, credit risk, interest cost, amortization schedule...) into tradeable securities (standardized assets). This mechanism enhances liquidity and provides a way to manage and distribute credit risk. Here's a detailed look at how securitization works:

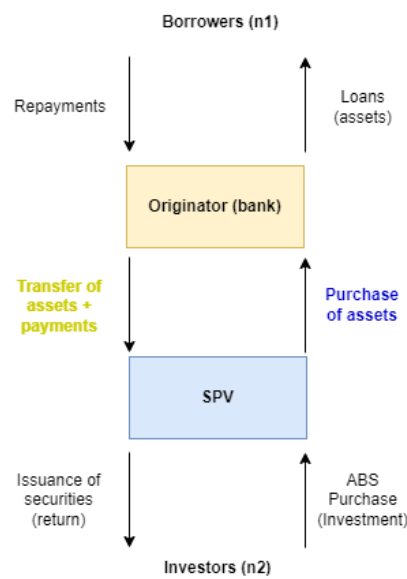


Figure 5. Securitization Structure Diagram.

- Asset sale and SPV formation: in securitization, an entity, such as a bank or a company (known as the *originator*), **sells a portfolio of cash-flow generating assets**—such as corporate loans, mortgage loans, or receivables—to a Special Purpose Vehicle (SPV). The SPV is specifically established to acquire these assets and is designed to isolate them from the originator's other activities. The primary purpose of the SPV is to manage and hold these assets and to issue securities backed by their cash flows.
- Asset-Backed Securities (ABS): the SPV finances the purchase of these cash-flow generating assets by **issuing securities** known as Asset-Backed Securities (ABS). ABS are tradeable financial instruments that represent claims on the cash flows generated by the underlying assets. By issuing ABS, the SPV provides investors with an opportunity to invest in these assets indirectly.

- **Tranching:** a critical feature of securitization is the division of the issued ABS into different tranches. **Tranching involves segmenting the securities into various classes or tranches, each with different levels of risk and return.** The senior tranches are the first to receive payments and are of lower risk, while the junior or subordinated tranches are paid after the senior tranches and absorb more risk in exchange for higher returns. This stratification allows **investors to select tranches** that match their risk appetite and return expectations. Properly rating and structuring these tranches is essential to attract a broad range of investors and achieve the desired financial outcomes.
- **Credit enhancement:** to make the ABS more attractive to investors, credit enhancement techniques are often employed. These can include over-collateralization, where the value of the underlying assets exceeds the value of the ABS issued, and reserve accounts or third-party guarantees that provide additional protection against potential losses.

Securitization is widely used in various financial markets, including mortgage-backed securities (MBS), asset-backed commercial paper (ABCP), and collateralized debt obligations (CDOs). By converting illiquid assets into tradable securities, securitization helps financial institutions manage capital and credit risk, while offering investors diverse investment opportunities.

### 2.3. Key Participants in Structured Finance

In structured finance, the key participants vary depending on whether the transaction involves Project Finance, Asset Finance, or Leveraged Buyouts (LBOs). However, some roles and stakeholders are common across these types of financing. Understanding the roles and motivations of these participants provides insight into how structured finance deals are structured and executed.

#### 2.3.1. Banks

Banks play a crucial role in structured finance by providing capital and loans. They are involved in:

- **Investing capital:** banks contribute significant capital (in the form of debt) to structured finance deals. This can include providing **loans, (directly or participating in syndicates) or underwriting securities.**
- **Reducing Risk-Weighted Assets:** by engaging in structured finance, banks can often reduce their RWAs, which helps them manage regulatory capital requirements more effectively. This is particularly relevant in transactions where the risk is spread through securitization or other structuring techniques.



### 2.3.2. Investors

There are different type of investors with different risk tolerance and which specialize in different sectors using different structured finance solutions. Their role involves not only providing capital but also actively managing and overseeing the investment. Some have a more active approach, while others tend to be passive and follow other more active investors in the deals they participate. Many of these types of investors are lately expanding into other sectors and raising capital for different strategies than those who were their initial focus. They include:

- **Private equity funds.** These are financial investors which focus on LBO's opportunities in order to achieve a return by acquiring, improving and selling the company.
- **Infrastructure funds:** These financials investors are like Private Equity funds but invest instead in infrastructure assets (less risky than those companies or assets invested by Private Equity funds). These investors focus on large-scale infrastructure projects such as bridges, highways, and renewable energy facilities. They achieve returns via cash dividends (or similar cash distributions) and improvements of companies or assets that they later sell. For doing this they use Project Finance structures in those companies or assets they acquire.
- **Transport sector investors:** in Asset Finance, investors specializing in transportation assets, like aircraft or shipping vessels, look for returns through lease payments and the value predictability of the assets they finance.
- **Debt funds:** Debt Funds are specialized entities that provide various forms of debt financing, including senior debt, mezzanine debt, and unitranche loans. They play a significant role in structured finance by providing specialized debt financing. Debt funds offer customized debt solutions that might not be available through traditional banking channels. They are adept at managing complex debt structures and often participate in high-yield or distressed debt markets. Therefore, they **contribute to fill financing gaps.**
- **Pension funds:** these investors seek stable, long-term returns that match their long-term liabilities. Structured finance deals, such as high-quality securitizations or infrastructure projects, provide a steady income stream. Big pension funds count with different pools of capital which they also allocate to private equity or debt financing strategies.

- **Insurance companies:** with their focus on long-term liabilities and capital preservation, insurance companies invest in structured finance deals to achieve consistent returns and manage risk. Like in the case of big pension funds, big insurance companies allocate part of the capital to riskier activities to enhance their returns (such as real estate, debt financing or private equity), although the majority of the capital they invest is deployed in very low risk and highly liquid assets (due to regulatory requirements).
- **Sovereign wealth funds:** these financial investors manage the capital allocated by nations (very common from oil and gas rich nations) to preserve the wealth of the country and diversify its sector concentration, and to increase the nation know-how on some sectors. Historically they have been very passive and have focused on minority deals in infrastructure, private equity and big listed companies, but they are becoming more active.
- **Family Offices:** vehicles created by rich individuals or families to manage their wealth. They participate usually as passive investors and their degree of involvement and usage of structured finance solutions depends on the size.

### 2.3.3. Industrial Sponsors

Industrial Sponsors are entities (usually industrial companies with track-record and know-how) with expertise in specific industries who invest in structured finance projects to leverage their sector-specific skills. They include:

- **Project developers and operators of infrastructure assets:** in Project Finance, these sponsors might be construction companies or infrastructure firms that not only provide capital but also bring their **technical expertise** to manage and execute the project. For instance, a construction firm might sponsor the development of a new bridge, bringing both funding and construction capabilities. These companies operate in infrastructure sectors such as airports, highways, data centers or energy.
- **Sector specialists:** in Asset Finance or other sectors, industrial sponsors with deep knowledge in areas such as transportation bring their industry expertise to enhance the project's viability and profitability. They are less visible investors who work directly with manufacturing companies and airlines just on the aircraft's financing side. Some important names are GECAS, AerCap or BBAM.

#### 2.4. Differences between Structured Finance and Corporate Funding

Structured finance and corporate funding represent two distinct approaches to securing capital as debt, each one with its unique characteristics and suited to different scenarios and companies. Understanding their differences is crucial for choosing the most appropriate method based on the specific needs of a project or company.

**Structured Finance.** Structured finance is designed to handle complex financial needs by pooling various assets and creating securities backed by those assets. It offers financing solutions when the traditional debt funding of a company is not feasible or is not optimal. This approach involves several key features:

- Complexity and customization: Structured finance deals with intricate arrangements involving Special Purpose Vehicles (SPVs) to isolate assets and manage risks “ringfencing” them. By segregating assets into an SPV, the financial risks associated with those assets are contained within the SPV, **thereby protecting the sponsoring company from direct exposure** (the risk is ringfenced to the project included in the SPV).
- Risk management: Structured finance often includes mechanisms to enhance the credit quality of the securities issued. These mechanisms, such as over-collateralization or credit enhancements, improve the attractiveness of the securities by providing additional layers of protection against potential losses.
- Investment opportunities: by **converting illiquid assets into tradeable securities**, structured finance increases market liquidity. Additionally, if the SPV is centered around a particularly valuable and well-defined asset, it can be attractive enough to go public. This approach not only raises capital but also broadens investment opportunities by offering various return/risk combinations, such as senior debt, mezzanine debt, and equity tranches.

**Corporate Funding.** Corporate funding encompasses more traditional methods of raising capital in the form of debt, and is characterized by its straightforward approach and few complexities:

- Balance sheet financing: Corporate funding is reflected on the sponsor's balance sheet and involves methods such as issuing corporate bonds or taking out loans. Unlike structured finance, where assets might be isolated in an SPV, **corporate funding is based on the overall financial health of the company. If a project fails, the sponsor must cover the debt using resources from other successful projects or assets**, necessitating a comprehensive analysis of the company's entire financial situation.

- **Simpler structures:** Corporate funding methods are generally less complex compared to structured finance. Issuing bonds or securing loans involves standard financial instruments without the intricate arrangements of asset pooling or risk isolation found in structured finance. This simplicity can result in **faster execution** and lower costs for securing capital.
- **Cost and duration considerations:** while corporate funding can be simpler and less expensive, it may not always be suitable for projects with specific needs such as long durations or high leverage. For example, corporate bonds or revolving credit facilities might not be ideal for projects requiring financing over 20 years or with significant leverage needs. Additionally, corporate funding is provided to companies with track record and healthy balance sheet, as it implies that the company is an on-going business, as the debt does not consider repayment profile but a refinancing when it is due.
- **Quicker execution:** Corporate funding arrangements are typically faster to complete than structured finance deals. While structured finance can involve several months of preparation due to its complexity, corporate loans or bond issuances can often be arranged within weeks.

**The decision between structured finance and corporate funding** depends on several factors, including the sponsor's credit profile, the nature of the project, and the specific financing requirements:

Companies with strong credit ratings may prefer corporate funding due to its **simplicity and potentially lower cost**. This approach is also suitable for less complex projects where traditional financing methods are adequate.

On the other hand, Structured finance is more appropriate for situations where **risk isolation is crucial**, multiple sponsors are involved, or the sponsor is a financial institution with limited balance sheet capacity. It is particularly beneficial for large-scale or long-term projects, where customized financial structures and risk management are necessary.

In summary, while structured finance offers sophisticated solutions for managing complex or high-risk scenarios, corporate funding provides a more direct and conventional method for raising capital. Understanding these differences helps in selecting the most suitable financing approach based on the project's requirements and the sponsor's financial situation.

## 2.5. Advantages of Structured Finance

Structured finance offers several key advantages that make it attractive for both companies seeking financing and investors. Below, these advantages are explained in a straightforward manner, with practical examples to illustrate how they work in reality.

1. **Risk isolation** and asset isolation.

One of the greatest advantages of structured finance is its ability to isolate risks and, in many cases, to isolate specific assets.

Imagine an airline owns a fleet of aircraft, some of which are operating in high-risk regions where the likelihood of incidents is higher. Through structured finance, the airline can create a financial structure that isolates these aircraft in a **separate entity**, such as a Special Purpose Vehicle (SPV). By doing this, the risks associated with these specific assets do not directly impact the parent company or other assets. This protects the company from catastrophic losses and allows investors to focus on the risks of those isolated assets without compromising the rest of the company.

2. Enhancement of **credit quality**

By isolating an asset through financial structures like SPVs, the credit quality of the individual asset can be enhanced. This occurs because **risks are more effectively managed, and protective measures are often added**.

Enhancing the credit quality of an asset involves making it **more attractive and secure for investors**. When assets are pooled and isolated within an SPV, they can be separated from the originating company's broader risks, such as operational or market risks. This means that the performance of these assets is solely dependent on their own cash flows and creditworthiness, not on the credit quality of the parent company.

Furthermore, credit enhancements can be applied to these isolated assets to further reduce risk and improve their appeal to investors. These enhancements might include over-collateralization, where the value of the assets exceeds the value of the issued securities or obtaining insurance to cover potential losses. By improving the credit quality of the asset, structured finance instruments can achieve higher credit ratings, which lowers borrowing costs and broadens the range of potential investors.

3. Attraction of **liquidity**.

Structured finance has the ability to attract liquidity to markets by converting illiquid assets into securities that can be easily bought and sold.

Consider a company that holds a large number of mortgages on its balance sheet. These mortgages, on their own, are illiquid assets, meaning they cannot be quickly

converted to cash without a significant loss in value. However, by securitizing these mortgages, the company can issue bonds backed by those mortgages. These bonds can be bought and sold in the secondary market, providing immediate liquidity to both the company and investors. **A demand with a fixed profile has been created.**

Moreover, if the SPV is **created around a particularly valuable and well-defined asset**, such as a portfolio of high-quality aircraft leases or prime real estate, it might have enough appeal to go public. By doing so, the SPV can attract a broader range of investors, further increasing liquidity and potentially raising significant capital through an initial public offering (IPO).

#### 4. **Diversity for investors.**

Structured finance offers a **variety of return/risk combinations**, allowing different types of investors to find opportunities that suit their investment profiles. A structured bond might be divided into different tranches, each with a distinct level of risk and return. This is a way of dividing an investment into different risk and return profiles, which could **broaden the investor base**. For example:

- Senior Debt: This carries the least risk and offers the lowest return, as it is the first to be paid in the event of financial difficulties.
- Mezzanine: This has intermediate risk and, therefore, offers a higher return than senior debt but lower than equity investment.

This structure allows both conservative and aggressive investors to participate in the same investment, choosing the tranche that best fits their risk appetite. What really changes is the condition of the security package and the order in which you are repaid.

#### 5. **Optimization of banks' balance sheets from a regulatory perspective.**

Structured finance allows banks to optimize their balance sheets in terms of regulatory requirements, particularly with respect to Risk-Weighted Assets (RWA).

Basel III regulations were implemented in response to the financial crisis of 2008, which exposed significant vulnerabilities in the global banking system. During the crisis, banks faced severe liquidity problems and inadequate reserves due to the poor management and misuse of structured finance instruments, such as mortgage-backed securities. These problems highlighted the risks associated with securitization and led to stricter regulatory measures.

As a result, under Basel III, banks are required to **hold a higher level of capital than before based on the risk profile of their assets**. By securitizing assets like mortgages or loans, a bank can transfer these assets off its balance sheet into an SPV. This reduces the bank's risk-weighted assets, which in turn lowers the

amount of capital it needs to retain. This helps banks meet regulatory requirements more effectively and frees up resources for other uses.

Additionally, banks can structure a security package that includes additional guarantees to protect investors, further improving the bank's regulatory position.

For example, a loan could force you as a bank to maintain a certain level of regulatory capital or reserves depending on its risk. Structured finance offers you the possibility to reduce that risk.

- Loan amount: \$100 M
- Corporate Loan: 100% RWA
- Reserve Requirements: 10%.

$$\text{Regulatory Capital} = 100 * 8\% * 100\% = \$8 M$$

Nevertheless, if you could manage to structure that loan or debt as a structured finance deal, including some kind of security package or a mortgage, that RWA could be reduced to a 30% f.e., freeing up space for other investments.

$$\text{Regulatory Capital \#2} = 100 * 8\% * 30\% = \$2,4 M$$

## 2.6. Debt Financing

From the point of view of the Debt Investors, each of the financing techniques included in Structured Finance (such as Leveraged Buyouts (LBOs), Project Finance, and Asset Finance) has its own set of debt instruments and structures, tailored to the specific needs and risks associated with the project. Understanding these options is essential for determining the most appropriate financing strategy on each situation.

There are multiple types of debts depending on the projects and its risk. They can be divided into:

- I. **Term Loans / Senior Loans** : These are secured loans, typically backed by a pledge on the shares of the HoldCo and the target company. Term Loans typically come with covenants, including financial ratios such as leverage ratio and debt to EBITDA.

Term Loans (TL) are classified based on their structure and repayment terms:

- TLA (Term Loan A): Generally amortizing over 5-7 years, meaning the loan is repaid in regular installments.
- TLB (Term Loan B): Usually bullet loans with longer maturities of over 7 years. Bullet loans require a single payment of the principal at maturity,

which can increase the Internal Rate of Return (IRR) and reduce debt service obligations.

- **TLC (Term Loan C):** Similar to TLB but with even longer maturities. These are less common and often tailored to specific market conditions.

	Debt Profile		Tenor
<b>TLA</b>	Amortizing	$i_A$	5-7 yrs
<b>TLB</b>	Bullet	$i_B > i_A$	7 yrs
<b>TLC</b>	Bullet	$i_C > i_B$	+ maturity

Table 1. Senior Loan Structures.

Furthermore, debt can be structured through **club deals** (smaller transactions with a single tranche of senior debt) or **underwriting**, which includes a **syndication and take&hold process** (where the initial debt is provided by one to three lenders and can be distributed to other banks or investors through mechanisms like Collateralized Debt Obligations (CDOs) or Collateralized Loan Obligations (CLOs)).

Lastly, additional credit facilities may be provided for various needs:

- **Revolving Credit Facilities (RCF):** Used for working capital requirements. It works as a credit card, being able to issue capital whenever is needed to cover WC needs, as long as a limit is not surpassed.
- **Capex Facility:** Intended for capital expenditure and equipment upgrades, these funds are directly tied to CapEx investments. The drawdown occurs progressively, with interest being paid on the drawn-down amount and a commitment fee on the portion of the committed capital that has not yet been issued.
- **Acquisition Facility:** Utilized at the HoldCo level for growth strategies. It is a term loan issued entirely the first day for an acquisition.

They have different maturities depending on the type of asset/project financed and the sponsor profile. As the RCF and Capex Facility are at financed Opco level, they are senior. On the other hand, acquisition facility could be also structured as senior, being also possible to have an additional junior tranche at a higher level providing new debt and return profiles.

## II. Subordinated Debt

- **Second Lien Debt:** This debt has a second priority claim on collateral, ranking below senior debt but above equity. It is secured by pledges over the shares of the HoldCo but is repaid only after senior debt has been fully settled.
- **Mezzanine Debt:** A **hybrid** form of financing that is junior to senior debt but senior to equity. It often involves **bullet loans** with a combination of interest payments, capitalized interest (Payment-in-Kind or PIK), and



equity warrants. Mezzanine debt provides higher returns but comes with higher risk.

- **High-Yield Bonds:** Also known as junk bonds, these are issued by the HoldCo or an additional SPV. They are rated and provide high yields but do not include PIK or warrants. High-yield bonds are typically used when a large pool of liquidity is required. For smaller transactions, junior debt might take the form of mezzanine financing.

Each type of debt financing has specific characteristics and is chosen based on the project's nature, size, and risk profile. The choice between different types of debt will vary depending on whether the financing is for an LBO, Project Finance, or Asset Finance, with each technique requiring a tailored approach to meet its unique requirements and objectives.

### 3. Asset Finance

#### 3.1. Overview of Asset Finance

Asset finance refers to a set of specialized financing techniques focused on acquiring and managing high-value, long-term assets. These assets, such as ships, aircraft, and trains, typically have an intrinsic value exceeding \$100 million and a lifespan of over 20 years. The financing primarily relies on the asset's quality, value, and expected revenue-generating potential, rather than the creditworthiness of the borrower. This approach allows companies to secure the necessary capital for acquiring expensive assets while preserving their liquidity and optimizing their balance sheets.

These industries include, but are not limited to, aviation, maritime, rail transport, and energy. The common factor across these sectors is the reliance on high-value assets with long operational lives, which play as hard assets. A buffer for any future setback.

Given the substantial costs involved in acquiring such assets, traditional financing methods, such as simple loans or equity financing, are often not available or inefficient. Asset finance provides a **tailored solution that aligns with the specific characteristics and needs of these large assets**. This can include various forms of leasing, such as operating leases or capital leases, as well as other structures like mortgage-backed loans or sale-and-leaseback arrangements.

There are some key characteristics:

- **Reliance on asset value:** The financing is **primarily secured by the asset** itself, with lenders assessing the asset's market value, potential for depreciation, and ability to generate income. This reduces the need for collateral beyond the asset, making it an attractive option for companies with limited access to traditional credit.

- Long-term nature: Asset finance is typically structured over the long term, matching the **asset's operational life**.
- Flexibility in financing structures: A wide range of financing structures can be employed in asset finance. These include term loans, where the asset is purchased outright with borrowed funds, and various leasing arrangements that offer different levels of ownership and financial responsibility. These possibilities will be later explained.
- Industry-specific considerations: The structure of asset finance can vary significantly depending on the industry.

### 3.2. Aircraft Industry

Asset finance plays a crucial role in the aircraft industry due to the high capital intensity of acquiring and operating aircraft. Given the significant costs associated with purchasing aircraft, asset finance provides a range of structures that help airlines, leasing companies, and other stakeholders manage these expenses efficiently.

#### 3.2.1. Analysis of Factors that influence aircraft valuation

1. **Aircraft age and condition:** the age and condition of an aircraft are primary determinants of its value. Newer aircraft typically command higher prices due to their advanced technology, fuel efficiency, and lower maintenance costs. Conversely, older aircraft may have depreciated significantly, especially if they have experienced extensive use.
2. Market demand and supply: the **balance between supply and demand** in the aircraft market influences valuation. High demand for a specific aircraft type can drive up its price, while an oversupply of similar aircraft can lead to lower prices.
3. Aircraft type and model: different aircraft types and models have varying values based on their intended use, capacity, and performance characteristics. For example, large, long-range commercial jets generally have higher values than smaller regional aircraft or business jets.
4. Maintenance history and records: A comprehensive and well-documented maintenance history is crucial for determining aircraft value. **Regular maintenance and adherence** to recommended service

intervals contribute to a higher valuation. **A clean maintenance record with no major issues or discrepancies** enhances buyer confidence and can increase the aircraft's market value.

5. **Engine hours and cycle count:** the number of engine hours and cycles (the number of takeoffs and landings) are significant factors in aircraft valuation. Engines with fewer hours and cycles typically have a higher value because they are closer to their next major overhaul. Detailed records of engine performance and maintenance are essential for assessing their remaining useful life and impact on the overall aircraft value.
6. Economic and regulatory environment: **economic downturns, such as covid-19 pandemic**, can reduce demand for aircraft, leading to lower values. Regulatory changes, such as **new environmental standards or modifications** in safety regulations, can impact the desirability and value of certain aircraft models.
7. **Residual Value Risk:** the potential residual value of an aircraft at the end of its operational life is a key consideration in valuation.
8. **Historical sales data:** Historical sales data and market comparables provide valuable benchmarks for aircraft valuation.

### 3.3.Asset Finance Structures

Depending on the type of financing, the participants involved, and the purpose of the project, there can be various types of asset finance structures.

#### 3.3.1. Mortgage

In asset finance, a mortgage is a type of secured loan where the asset itself, such as an aircraft or ship, serves as collateral. The lender holds a lien on the asset until the loan is fully repaid. Mortgages are particularly common in the financing of movable assets with a **significant and stable market value**. The asset acts as security for the loan, providing the lender with some protection. If the borrower defaults, the lender has the right to repossess and sell the asset to recover the outstanding loan balance.

The loan amount is often limited to a percentage of the asset's value, typically around **70-80%**, called **Loan-to-Value (LTV)**. This margin provides a buffer for the lender against potential declines in the asset's value or additional costs incurred during repossession and sale.

Mortgages can be structured as **fully amortizing loans**, where equal installments are paid over the loan term until they are fully repaid. Alternatively, some loans may feature a **bullet payment** at the end, requiring a large final payment or refinancing.

**Unlike project finance deals, asset finance is not linked to the asset’s performance or profitability, but to its market value.** It is similar to a residential mortgage granted to an individual to buy a property.

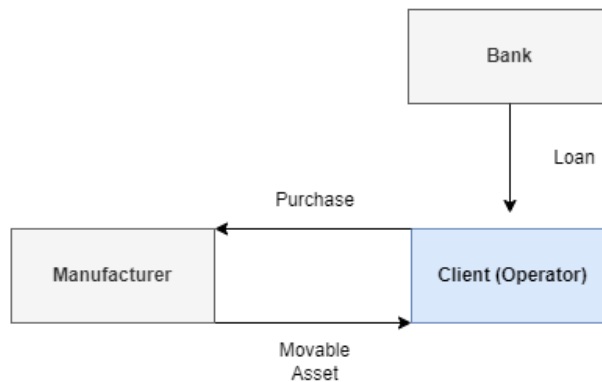


Figure 6. Asset Finance: Mortgage Diagram.

### 3.3.2. Operating Leases

An operating lease is a lease agreement where the lessee rents the asset for a term shorter than its useful life, with no option or obligation to purchase the asset at the end of the lease period. This lease agreement consists of an operating company paying periodic rentals to the owner of the asset (SPV) in order to use it.

Operating leases are more flexible and are often used when the lessee needs the asset for a specific, shorter period.

They provide significant flexibility for companies by allowing them to use assets without assuming the financial burden of ownership. This flexibility makes operating leases particularly attractive for off-balance-sheet financing, as the leased asset and related liabilities generally do not appear on the lessee’s balance sheet, depending on the applicable accounting standards.

These leases are commonly employed in industries that involve high-value, long-lived assets, such as aircraft, ships, and heavy machinery. In such sectors, operating leases are managed by lessors who specialize in leasing arrangements. **These specialized companies possess extensive**

**knowledge of the assets and their markets, which enables them to effectively handle the residual value risk associated with the lease.**

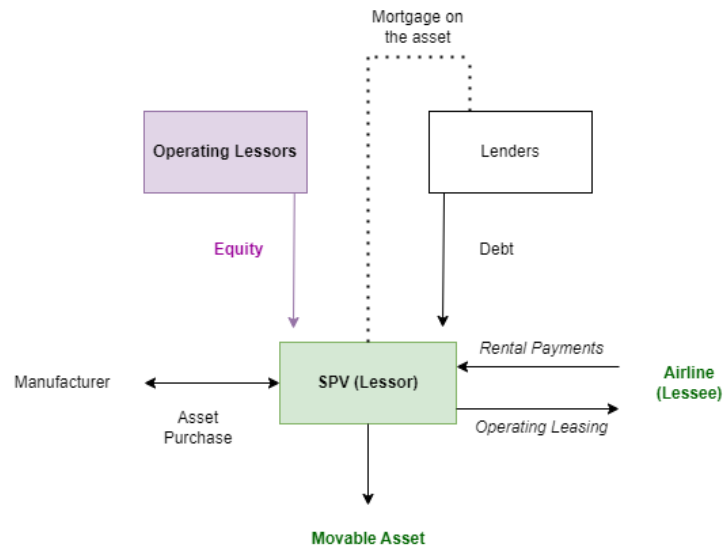


Figure 7. Asset Finance: Operating Lease Diagram.

### 3.3.3. Finance Leases / Tax Leases

A finance lease is a contractual arrangement where the lessee (the asset user) pays for the right to use the asset for most of its useful life. The lessee effectively finances the asset's acquisition through rental payments, and at the end of the lease term, they often have the **option to purchase the asset for a nominal sum**. LTV is calculated as well.

The lessor (usually a bank or financial institution) owns the asset during the lease period. However, the lessee assumes most of the risks and rewards of ownership, including maintenance and insurance responsibilities.

In some cases, finance leases are structured to take advantage of tax benefits. The lessor, who technically owns the asset, may benefit from **depreciation deductions**, which can be passed on to the lessee through lower lease payments. This is particularly relevant in **tax leases**, where tax benefits drive the lease structure.

**The tax lease diagram is illustrated below. It shows how, by contributing a nominal amount of equity in addition to a senior loan, a tax advantage can be generated by consolidating the SPV's debt and financials with those of the parent company.**

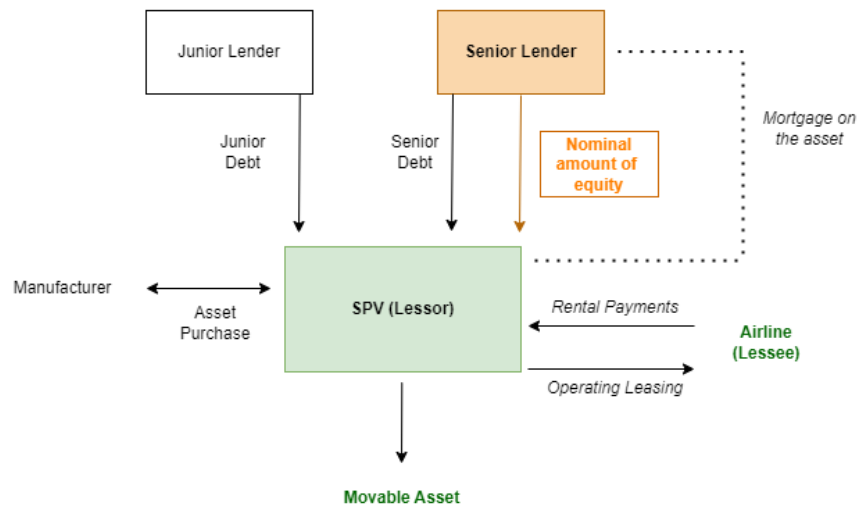


Figure 8. Asset Finance: Finance Lease Diagram.

**The following Case Study, which will be analyzed and modeled, involves a finance lease structure.**

3.4. Capital Lease and Tax Lease Structure

A tax lease, often used in conjunction with a capital lease, introduces a tax-efficient dimension to the financing arrangement. **It works as a combination of the previous techniques but with a different final aim for the equity investor.** The primary advantage of a tax lease is the ability to **accelerate depreciation** of the asset for tax purposes. In this structure, the Special Purpose Vehicle (SPV), which is typically created for this purpose, acquires the asset and claims the depreciation. This accelerated depreciation creates a **negative tax result for the SPV in the initial years of the lease**, which can be advantageous from a tax perspective.

**The consolidation** of the SPV and the lessor allows for the realization of tax benefits. Although the SPV experiences a negative tax result initially due to accelerated depreciation, this can be offset by future positive tax results. The concept of the **time value of money** plays a critical role here. **The tax savings realized in the early years of the lease are valuable because they are received sooner rather than later.** This immediate benefit outweighs the deferred tax liability that will arise when the SPV begins to report taxable income after the initial depreciation period.

The capital lease structure allows for the efficient use of capital, while the tax lease structure provides significant tax advantages through accelerated

depreciation. Together, these arrangements enable companies to manage high-value assets effectively while optimizing their financial and tax positions. The strategic use of these leases can lead to **enhanced cash flow and improved return on investment**, making them valuable tools in structured finance and asset management.

When comparing two different income statements—one excluding an asset-based finance investment and one including it—it becomes apparent how taxable income is reduced due to interest and, primarily, **depreciation**. Depreciation is an expense that does not impact the overall cash flow statement, thus leading to a reduced tax payment.

Income Statement (\$)		
Asset Based Financing		
Revenues	2.000.000	2.000.000
Operating Expenses	-800.000	-800.000
EBITDA	1.200.000	1.200.000
D&A	-200.000	-250.000
EBIT	1.000.000	950.000
Interest	-50.000	-60.000
EBT	950.000	890.000
Taxes	-237.500	-222.500
Net Income	712.500	667.500
<b>Taxable Base</b>	<b>950.000</b>	<b>890.000</b>

Table 2. Income Statement - Tax Lease.

Therefore, the taxable income is reduced, which is the ultimate goal of a tax lease. Even though net income has been reduced, it is crucial to understand that cash flow does not decline significantly because **depreciation represents a loss of value, not a loss of cash**. This can improve returns, in addition to having parallel investments that could generate additional benefits.

### 3.5. Comparable Table

To sum up, the following table explains the main differences among the previous asset finance solutions.

Aviation example	Mortgage Loan	Finance Lease	Operating Lease
Legal ownership	Airline	SPV	SPV
Economic ownership	Airline	Airline	Airline (dry lease) or operating lessor (wet lease)
Depreciation of the asset (tax)	Airline	SPV	SPV
Option to buy	Not applicable	Yes	Yes
Payments	Repayment of the mortgage loan	Rentals	Rentals

Table 3. Asset Finance Solutions

### 3.6. Case Study Analysis and Selection Criteria

#### **Bank (Senior Lender + Equity): BBVA.**

BBVA is one of the largest multinational financial institutions based in Spain, with a strong global presence across different markets. The bank is recognized for its robust expertise in corporate banking, structured finance, and asset-based financing. Its solid credit rating and extensive experience in lending to high-value industries make it a strong contender for senior lending in aviation finance.

The bank typically provides **senior debt** in such transactions, meaning it takes on less risk compared to junior lenders but enjoys a priority in repayment. Its deep understanding of structured finance allows it to balance risk and return, **leveraging the asset (the aircraft in this case) as collateral**. Apart from that debt tranche, **BBVA include a small equity contribution with the only objective of controlling that SPV and gaining those tax advantages.**

#### **Airline (Lessee + Junior Lender): IBERIA.**

Iberia, the flagship carrier of Spain, is part of the International Airlines Group (IAG), which also owns British Airways and Aer Lingus. It is one of the oldest airlines in the world, with a strong market presence in Europe and Latin America. Iberia operates a mixed fleet of short-, medium-, and long-haul aircraft, making it a well-established player in global aviation.

In asset finance transactions, Iberia often plays the role of the lessee, utilizing aircraft on an operating or finance lease basis. Given its scale and financial stability, Iberia is considered a **low-risk lessee** in such arrangements. Furthermore, as part of IAG, the airline benefits from **strong financial backing**, which gives it



access to favorable lending conditions. In some cases, Iberia may even act as a junior lender in aircraft financing transactions, contributing equity or subordinated debt to optimize financing costs while leveraging favorable tax and lease structures. The main reason for this is having some **skin in the game**. BBVA will work better with this structure if the operating company finance a small part of it, having certainty regarding the asset value.

### **Manufacturer: AIRBUS.**

**Airbus is one of the two major aircraft manufacturers in the world, alongside Boeing.** Headquartered in Europe, Airbus is known for its innovative and highly efficient aircraft models, including the A330, which is widely used for long-haul flights. Airbus plays a critical role in the aircraft financing landscape, not only as a manufacturer but also as a participant in financing deals through vendor financing and support for airlines and leasing companies.

As a leading manufacturer, Airbus offers various financing and leasing options to airlines to support the sale of its aircraft. This can include providing direct financing through Airbus Finance, facilitating **export credit agency (ECA) guarantees**, or coordinating with banks and leasing companies to ensure customers can acquire the aircraft they need. Given its long-standing relationships with airlines and banks, Airbus often acts as an intermediary, ensuring the financial viability of the deals while maintaining the value of its aircraft in the secondary market.

### **Aircraft: Airbus A330.**

#### **Aircraft Profile**

- Manufacturer: Airbus
- Type: Wide-body, long-range, twin-engine aircraft
- Price Range: **\$200-300 million** (depending on variant and configuration)
- Passenger Capacity: Up to 335 passengers in a two-class configuration (varies by version)
- Cargo Capacity: 70 tons of cargo in the freighter variant (A330-200F)
- Range:
  - Flight Range: Between 5,000 km and 13,430 km, depending on the variant (e.g., A330-200 vs A330-300)
- Key Systems:
  - Equipped with side-stick controls
  - Engine Options: General Electric CF6, Pratt & Whitney PW4000, Rolls-Royce Trent 700.
- First Flight and Service Entry:

- First Flight: 1992 (A330-300 variant)
- Service Entry: 1994, operated by Air Inter
- Production and Deliveries:
  - Total Aircraft Delivered: 1,439 (as of current data)
  - Aircraft in Operation: 1,403
- Largest Operator: Turkish Airlines (66 A330 aircraft in its fleet)



Figure 9. Airbus A330.

### 3.6.1. Case Analysis Diagram

In this leasing structure, the airline—Iberia in this case, plays a dual role by **not only making rental payments but also participating as a junior lender. This participation allows Iberia to absorb part of the risk alongside the senior lender, rather than placing all of it on the bank. While Iberia, as a junior lender, does not directly benefit from the tax deductibility of interest payments or the depreciation of the asset (which would typically reduce tax liabilities for an owner), it does gain a key advantage: a discount on the final purchase price of the aircraft.**

By financing the project this way, the interest of all parties involved increases. The asset will be fully financed during the deal's lifespan. Once the deal concludes, the bank will have no interest in retaining the asset, which still possesses a remaining operational life. This allows the operating company to acquire the asset for a minimal amount, thereby enhancing IBERIA's interest in the deal.

Since the rental payments made by Iberia are structured to match the debt service, covering both the senior and junior loans, there is no need to pay the portion of the equity investment. **In other words, the lease structure eliminates the need for Iberia to contribute toward the equity, which lowers the effective purchase price of the aircraft.** Ultimately, the final cost for Iberia becomes the aircraft's price minus the equity investment.

This mechanism reduces the overall financial burden on Iberia while providing it with long-term access to the asset, and also spreads the financial risk between the airline and the bank.

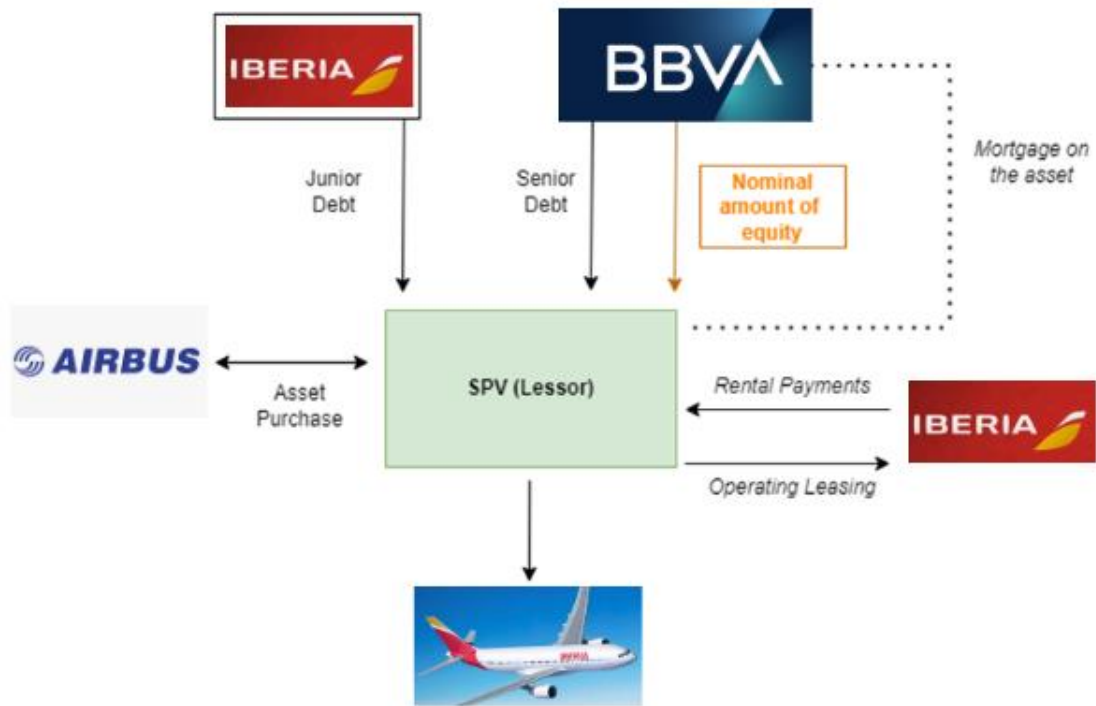


Figure 10. Case Analysis Diagram.

## 4. Financial Modeling for Asset Financing

### 4.1. Inputs and Assumptions

The Excel has been designed to allow for the easy modification of any variable.

UNIVERSIDAD PONTIFICIA COMILLAS

ESCUELA TÉCNICA SUPERIOR DE INGENIERÍA (ICAI)

GRADO EN ADMINISTRACIÓN Y DIRECCIÓN DE EMPRESAS (ADE-MUII)

INPUTS ASSUMPTIONS				1	2	3	4
	Value	Unit	Scenario				
<b>Asset Assumptions</b>							
Aircraft Cost	250	\$M	2	200	250	270	300
Lifespan	20	yrs	1	20	15	30	25
Final Nominal Price	0,125	\$M	1	0,05%	0,10%	0,08%	0,03%
<b>Financing Assumptions</b>							
Equity Amount	3,75	\$M	1	1,5%	2,5%	3,0%	2,0%
Senior Loan	200	\$M	1	80,0%	75,0%	70,0%	65,0%
Senior Loan Interest	5,0%	%	1	5,0%	5,5%	6,0%	6,5%
Junior Loan	46,25	\$M	x				
Junior Loan Interest	5,2%	%	1	0,15%	0,25%	0,10%	0,40%
<b>Leasing Assumptions</b>							
Lease Period	12	%	1	12	14	11	13
<b>Key Assumptions</b>							
Corporate Tax Rate	25%	%	3	15,0%	20,0%	25,0%	30,0%
Discount Rate	5,50%	%	1	0,5%	0,8%	1,0%	1,25%
Depreciation Life	8	yrs	1	8	7	9	10
Start Date	01/01/2024	Date	x				

Figure 11. Inputs Assumptions.

#### 4.1.1. Asset Assumptions

- **Official Asset Value:** The aircraft officially has a value of \$300 million. However, in these financing arrangements, discounts are often negotiated with manufacturers, resulting in a final asset cost of **\$250 million**.
- **Lifespan:** The aircraft has an estimated lifespan of approximately 20 years. However, the leasing period is planned to be around 12 years. This approach reduces the risk associated with a potential future sale of the asset in case you have to keep it.
- **Purchase Option:** At the end of the lease, the airline has the option to purchase the aircraft at a nominal price of **€125,000 (0.05% of the total value)**. This amount is considered minimal and serves as a nominal fee for the purchase option.

#### 4.1.2. Financing Assumptions

##### I. Senior Loan

- a. Amount: The senior loan constitutes **80% (LTV)** of the aircraft's value, amounting to **\$200 million**. This structure is designed to mitigate residual value risk.
- b. Interest Rate: Given the current high-interest rate environment due to inflation, the senior loan interest rate is set at **5%**, a more reasonable and adapted figure.

$$\text{Loan to Value Ratio (LTV)} = \frac{\text{Loan Amount}}{\text{Aircraft Value}}$$

## II. Equity

- a. Amount: Equity represents **1.5% of the aircraft's value, totaling \$3.75 million**. This equity contribution is strategically included to leverage **tax advantages**. **You invest just the minimum required to have the SPV's control, which permits you to harness the deductibility of its losses.**

## III. Junior Loan

- a. Amount: The junior loan covers the remaining 18.5% of the aircraft's value, equating to **\$46.25 million**.
- b. Interest Rate: The junior loan carries an interest rate that is **0.15% higher than the senior loan rate (5,15%)**, reflecting its subordinate position in the capital structure.

### 4.1.3. Key Assumptions

- **Corporate Tax Rate:** The corporate tax rate has been set at **25%**, which is a typical rate in Spain.
- **Discount Rate:** The discount rate has been modeled in the Excel sheet to be **0.5%, 0.8%, 1%, or 1.25% above the interest rate on the senior loan**. Generally, the discount rate or WACC should be higher than the senior loan rate because it includes the cost of equity. However, in this case, **the equity component is minimal**, less than 3.4% of the total capital. Therefore, the assumption for the discount rate basis is set at **+0.5%**.
- **Depreciation Life:** The asset will be depreciated over **8 years**, which is 4 years shorter than the leasing period. This **accelerated depreciation** schedule allows for tax advantages in the initial years (Years 1-8) compared to the latter years (Years 8-12), to take advantage of the "time value of money" (eg, total amount of taxes to be paid is the same along the life of the asset, but with this structure more taxes are paid in the later years 8-12).

### 4.1.4. Case Base

INPUTS ASSUMPTIONS		
	Value	Unit
<b>Asset Assumptions</b>		
Aircraft Cost	250	\$M
Lifespan	20	yrs
Final Nominal Price	0,125	\$M
<b>Financing Assumptions</b>		
Equity Amount	3,75	\$M
Senior Loan	200	\$M
Senior Loan Interest	5,0%	%
Junior Loan	46,25	\$M
Junior Loan Interest	5,2%	%
<b>Leasing Assumptions</b>		
Lease Period	12	%
<b>Key Assumptions</b>		
Corporate Tax Rate	25%	%
Discount Rate	5,50%	%
Depreciation Life	8	yrs
Start Date	01/01/2024	Date

Figure 12. Case Base.

#### 4.2. Leasing Structure

In this asset finance structure, the repayment of both the junior loan and senior loan is carefully designed to align with the rental payments made by the lessee, ensuring a seamless flow of funds and efficient debt servicing. The annual debt service for both types of loans is structured to match the installment payments, which are equivalent to the rental payments from the airline. In this case, the **annual rental payment totals \$27.83 million, which fully covers the debt obligations.**

This structure ensures that the lessee's rental payments directly fund the debt service, minimizing risk for both the lenders and the lessor. By synchronizing the debt repayment schedule with the inflow from the lessee, the arrangement maintains liquidity and mitigates the risk of missed payments, making the financing more secure. Additionally, the structure typically includes mechanisms to handle variations in cash flows or unforeseen disruptions, ensuring stability throughout the lease term.

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LEASING SCHEDULE																
BoP		01/01/2024	01/01/2025	01/01/2026	01/01/2027	01/01/2028	01/01/2029	01/01/2030	01/01/2031	01/01/2032	01/01/2033	01/01/2034	01/01/2035	01/01/2036	01/01/2037	
BoP	31/12/2023	31/12/2024	31/12/2025	31/12/2026	31/12/2027	31/12/2028	31/12/2029	31/12/2030	31/12/2031	31/12/2032	31/12/2033	31/12/2034	31/12/2035	31/12/2036	31/12/2037	
Period	0	1	2	3	4	5	6	7	8	9	10	11	12	-	-	
Operation SWITCH	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	FALSE
Start Date	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
Terminal Date SWITCH	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE
Depreciation SWITCH	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
<b>Senior Loan</b>																
Opening Balance	\$M	-	200,00	187,43	174,24	160,39	145,84	130,57	114,53	97,69	80,01	61,45	41,96	21,49	-	-
Drawdown	\$M	200,00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Principal Repayment	\$M	-	-12,57	-13,19	-13,85	-14,55	-15,27	-16,04	-16,84	-17,68	-18,56	-19,49	-20,47	-21,49	-	-
Closing Balance	\$M	200,00	187,43	174,24	160,39	145,84	130,57	114,53	97,69	80,01	61,45	41,96	21,49	-0,00	-	-
Interest	\$M	-	-10,00	-9,37	-8,71	-8,02	-7,29	-6,53	-5,73	-4,88	-4,00	-3,07	-2,10	-1,07	-	-
<b>SL Debt Service</b>	<b>\$M</b>	<b>-270,78</b>	<b>-</b>	<b>-22,57</b>	<b>-22,57</b>	<b>-22,57</b>	<b>-22,57</b>	<b>-22,57</b>	<b>-22,57</b>	<b>-22,57</b>	<b>-22,57</b>	<b>-22,57</b>	<b>-22,57</b>	<b>-22,57</b>	<b>-</b>	<b>-</b>
<b>Junior Loan</b>																
Opening Balance	\$M	-	46,25	43,37	40,34	37,16	33,81	30,29	26,58	22,69	18,60	14,29	9,76	5,00	-	-
Drawdown	\$M	46,25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Principal Repayment	\$M	-46,25	-	-2,88	-3,03	-3,18	-3,35	-3,52	-3,70	-3,89	-4,09	-4,30	-4,53	-4,76	-5,00	-
Closing Balance	\$M	46,25	43,37	40,34	37,16	33,81	30,29	26,58	22,69	18,60	14,29	9,76	5,00	-0,00	-	-
Interest	\$M	-	-2,38	-2,23	-2,08	-1,91	-1,74	-1,56	-1,37	-1,17	-0,96	-0,74	-0,50	-0,26	-	-
<b>JL Debt Service</b>	<b>\$M</b>	<b>-63,15</b>	<b>-</b>	<b>-5,26</b>	<b>-5,26</b>	<b>-5,26</b>	<b>-5,26</b>	<b>-5,26</b>	<b>-5,26</b>	<b>-5,26</b>	<b>-5,26</b>	<b>-5,26</b>	<b>-5,26</b>	<b>-5,26</b>	<b>-</b>	<b>-</b>
<b>Rentals</b>	<b>\$M</b>	<b>333,93</b>	<b>-</b>	<b>27,83</b>	<b>27,83</b>	<b>27,83</b>	<b>27,83</b>	<b>27,83</b>	<b>27,83</b>	<b>27,83</b>	<b>27,83</b>	<b>27,83</b>	<b>27,83</b>	<b>27,83</b>	<b>-</b>	<b>-</b>
<b>Overall Debt</b>																
Opening Balance	\$M	-	246,25	230,80	214,58	197,54	179,65	160,86	141,12	120,38	98,61	75,74	51,72	26,50	-	-
Drawdown	\$M	246,25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Principal Repayment	\$M	-246,25	-	-15,45	-16,22	-17,04	-17,89	-18,79	-19,74	-20,73	-21,77	-22,87	-24,02	-25,23	-26,50	-
Closing Balance	\$M	246,25	230,80	214,58	197,54	179,65	160,86	141,12	120,38	98,61	75,74	51,72	26,50	-0,00	-	-
Interest	\$M	-	-12,38	-11,61	-10,79	-9,93	-9,03	-8,09	-7,10	-6,05	-4,96	-3,81	-2,60	-1,33	-	-
<b>Total Debt Service</b>	<b>\$M</b>	<b>-</b>	<b>-27,83</b>	<b>-27,83</b>	<b>-27,83</b>	<b>-27,83</b>	<b>-27,83</b>	<b>-27,83</b>	<b>-27,83</b>	<b>-27,83</b>	<b>-27,83</b>	<b>-27,83</b>	<b>-27,83</b>	<b>-27,83</b>	<b>-</b>	<b>-</b>

Figure 13. Leasing Structure and Rental Payments.

4.3. SPV Financials

Despite the SPV being a shell company, it has its own financials that provide insight into the operation's performance. Analyzing these financials offers a distinct perspective compared to evaluating the profitability of the equity investor and the various lenders.

LEASING SCHEDULE																
BoP		01/01/2024	01/01/2025	01/01/2026	01/01/2027	01/01/2028	01/01/2029	01/01/2030	01/01/2031	01/01/2032	01/01/2033	01/01/2034	01/01/2035	01/01/2036	01/01/2037	
BoP	31/12/2023	31/12/2024	31/12/2025	31/12/2026	31/12/2027	31/12/2028	31/12/2029	31/12/2030	31/12/2031	31/12/2032	31/12/2033	31/12/2034	31/12/2035	31/12/2036	31/12/2037	
Period	0	1	2	3	4	5	6	7	8	9	10	11	12	-	-	
Operation SWITCH	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	FALSE
Start Date	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
Terminal Date SWITCH	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE
Depreciation SWITCH	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
<b>Income Statement</b>																
		27,83														
Revenues / Rentals	\$M	-	27,83	27,83	27,83	27,83	27,83	27,83	27,83	27,83	27,83	27,83	27,83	27,83	27,96	-
Operating Costs	\$M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EBITDA	\$M	-	27,83	27,83	27,83	27,83	27,83	27,83	27,83	27,83	27,83	27,83	27,83	27,83	27,96	-
D&A	\$M	-	-31,25	-31,25	-31,25	-31,25	-31,25	-31,25	-31,25	-31,25	-31,25	-	-	-	-	-
EBIT	\$M	-	-3,42	-3,42	-3,42	-3,42	-3,42	-3,42	-3,42	-3,42	-3,42	27,83	27,83	27,83	27,96	-
Interest	\$M	-	-12,38	-11,61	-10,79	-9,93	-9,03	-8,09	-7,10	-6,05	-4,96	-3,81	-2,60	-1,33	-	-
EBT	\$M	-	-15,80	-15,03	-14,21	-13,35	-12,45	-11,51	-10,52	-9,47	-8,36	-7,21	-6,06	-4,91	-	-
Taxes	\$M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tax Advantage	\$M	-	4,74	4,51	4,26	4,01	3,74	3,45	3,15	2,84	2,52	2,20	1,88	1,56	-	-
Net Income	\$M	-	-15,80	-15,03	-14,21	-13,35	-12,45	-11,51	-10,52	-9,47	-8,36	-7,21	-6,06	-4,91	18,64	-

Figure 14. SPV Income Statement.

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Cash Flow Statement														
Net Income	\$M	-	-15,80	-15,03	-14,21	-13,36	-12,46	-11,51	-10,52	-9,48	17,15	18,01	18,92	19,97
D&A	\$M	-	31,25	31,25	31,25	31,25	31,25	31,25	31,25	31,25	-	-	-	-
Δ Working Capital	\$M	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Cash Flow from Operations</b>	\$M	-	15,45	16,22	17,04	17,89	18,79	19,74	20,73	21,77	17,15	18,01	18,92	19,97
Capex	\$M	-250,00	-	-	-	-	-	-	-	-	-	-	-	-
<b>Cash Flow from Investing</b>	\$M	-250,00	-	-	-	-	-	-	-	-	-	-	-	-
Debt	\$M	246,25	-15,45	-16,22	-17,04	-17,89	-18,79	-19,74	-20,73	-21,77	-22,87	-24,02	-25,23	-26,50
Equity	\$M	3,75	-	-	-	-	-	-	-	-	-	-	-	-
<b>Cash Flow from Financing</b>	\$M	250,00	-15,45	-16,22	-17,04	-17,89	-18,79	-19,74	-20,73	-21,77	-22,87	-24,02	-25,23	-26,50
<b>Cash Flow for FY</b>	\$M	-	-	-	-	-	-	-	-	-	-5,72	-6,00	-6,31	-6,53

Figure 15. SPV Cash Flow Statement.

Balance Sheet														
<b>Assets</b>		250,00	218,75	187,50	156,25	125,00	93,75	62,50	31,25	-	-5,72	-11,72	-18,03	-24,56
Asset	\$M	250,00	218,75	187,50	156,25	125,00	93,75	62,50	31,25	-	-	-	-	-
Cash	\$M	-	-	-	-	-	-	-	-	-	-5,72	-11,72	-18,03	-24,56
<b>Liabilities + Equity</b>		250,00	218,75	187,50	156,25	125,00	93,75	62,50	31,25	0,00	-5,72	-11,72	-18,03	-24,56
Debt	\$M	246,25	230,80	214,58	197,54	179,65	160,86	141,12	120,38	98,61	75,74	51,72	26,50	-0,00
Equity	\$M	3,75	3,75	3,75	3,75	3,75	3,75	3,75	3,75	3,75	3,75	3,75	3,75	3,75
Retained Earnings	\$M	-	-15,80	-30,83	-45,04	-58,40	-70,86	-82,37	-92,88	-102,36	-85,21	-67,19	-48,27	-28,31
<b>CHECK</b>		<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>	<b>TRUE</b>

Figure 16. SPV Balance Sheet.

#### 4.4. Debt and Depreciation

In the following figures, you can observe the difference between accelerated depreciation and regular accounting depreciation. Accounting depreciation is the standard method used to reflect the loss in value of an asset over time. It is typically spread out in a linear fashion or according to a regular pattern over the useful life of the asset.

On the other hand, accelerated depreciation allows companies to deduct a larger portion of the asset's cost in the earlier years of its useful life. This method is particularly attractive from a tax perspective, as it enables businesses to reduce their taxable income in the initial years following the acquisition of the asset, creating a tax advantage.

The main benefit of accelerated depreciation is that it **improves short-term cash flow at the expense of the cash flow in the latest years**, as it reduces the amount of taxes a company needs to pay in the early years. **These tax savings in the initial years can be reinvested in the business or used for other operations.**

This difference is clearly illustrated in the figures, where accelerated depreciation shows a higher initial deduction compared to regular accounting depreciation, which is spread more evenly over time.



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Depreciation															
<b>Book Value</b>															
BoP Asset	\$M	250,00	250,00	218,75	187,50	156,25	125,00	93,75	62,50	31,25	-	-	-	-	
Accelerated Depreciation	\$M	-	-31,25	-31,25	-31,25	-31,25	-31,25	-31,25	-31,25	-31,25	-	-	-	-	
EoP Asset	\$M	250,00	218,75	187,50	156,25	125,00	93,75	62,50	31,25	-	-	-	-		
<b>Tax Basis</b>															
BoP Asset	\$M	250,00	250,00	229,17	208,33	187,50	166,67	145,83	125,00	104,17	83,33	62,50	41,67	20,83	-0,00
Depreciation	\$M	-	-20,83	-20,83	-20,83	-20,83	-20,83	-20,83	-20,83	-20,83	-20,83	-20,83	-20,83	-20,83	-
EoP Asset	\$M	250,00	229,17	208,33	187,50	166,67	145,83	125,00	104,17	83,33	62,50	41,67	20,83	-0,00	
Δ Depreciation	\$M	-	10,42	20,83	31,25	41,67	52,08	62,50	72,92	83,33	62,50	41,67	20,83	-0,00	

Figure 17. Depreciation Book Value vs Tax Basis.

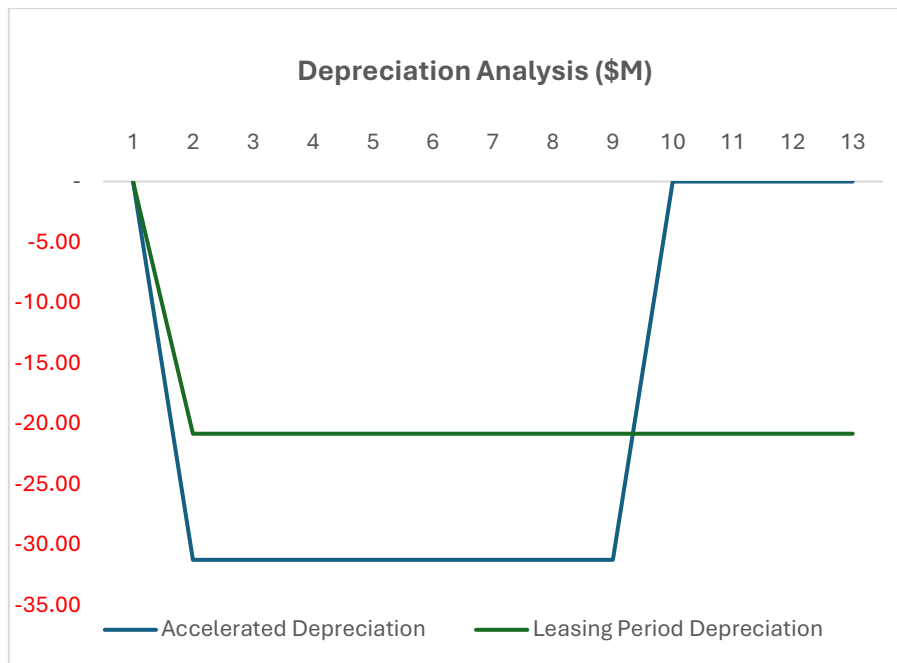


Figure 18. Depreciation Expense Figure.

4.5. Tax Advantage

In the following figure, the tax advantage is prominently illustrated, highlighting a key benefit for the tax investor (equity investor). This advantage stems from the substantial tax savings, which, when discounted to the present value, create significant financial benefits for the investor. These savings can be so impactful that they may offset the need for receiving dividends throughout the project's duration. This financial structuring underscores the strategic advantage of tax-efficient investments in asset finance, where the **timing and magnitude of tax benefits can enhance overall returns and project attractiveness.**

**Although the absolute value of tax gains and losses balances out over time, the discounted cash flows reveal that the benefits are amplified in the short**

**term and diminish in the future, resulting in an overall net gain. This happens due to NPV calculation.**

**Due to that n (TVM), although the sums of Cs (Tax Cost/Income) is 0 at the end in absolute terms, if you discount them to the present, future negative long term cash flows are less than positive short term cash flows in the present.**

$$\frac{C}{(1+r)^n}$$

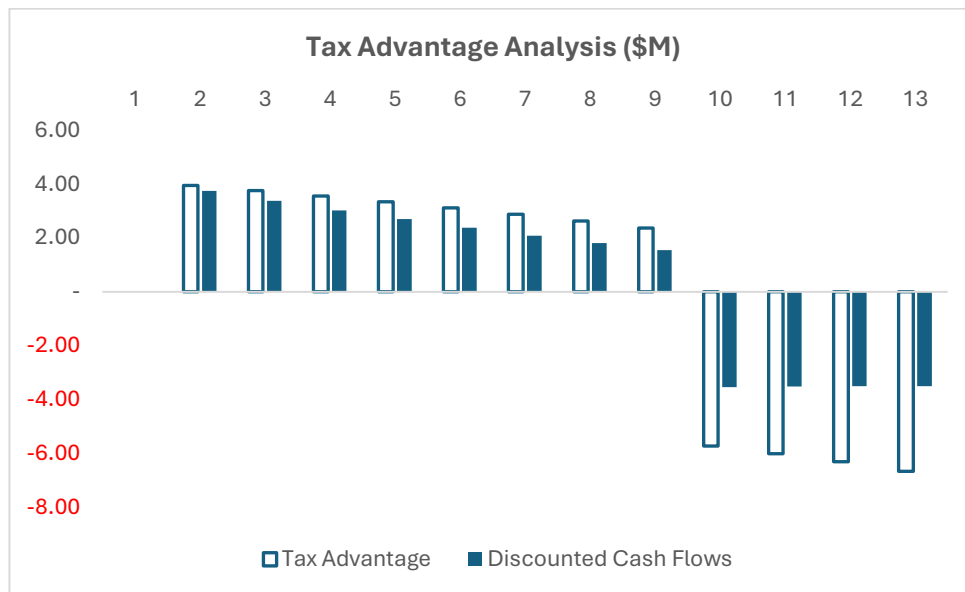


Figure 19. Tax Advantage Analysis.

#### 4.6. Sensitivity Analysis

In conclusion, creating a sensitivity table to analyze the impact of the **discount rate and corporate tax rate** on the project's Net Present Value (NPV) has proven to be particularly insightful. These two variables play crucial roles in determining the **financial outcomes, and their effects operate inversely to typical expectations**. Specifically, high interest rates and corporate tax rates can amplify the gains through tax arbitrage, highlighting the strategic advantage of tax leases.

This analysis underscores that the Internal Rate of Return (IRR) may not fully capture the financial benefits in such scenarios. Unlike traditional investments, which primarily focus on future cash flows, tax leases leverage short-term tax savings, which can create significant value despite potential future losses. Consequently, the IRR may not directly reflect the project's profitability as it primarily accounts for long-term cash flows rather than short-term tax benefits and their impact on overall project value.

		Corporate Tax Rate			
		15%	20%	25%	30%
Wacc	2,87				
	5,50%	0,22	1,54	2,87	4,19
	5,75%	0,31	1,67	3,02	4,38
	6,00%	0,40	1,79	3,17	4,56
	6,25%	0,49	1,90	3,32	4,73

Depreciation Life	8
Lease Period	12

Figure 20. Sensitivity Tables - Rates Analysis.

The base case, as previously established, is depicted in the graph, representing a **conservative scenario with a tax rate of 25% and an interest rate of 5.5%**, resulting in **\$2.87 M as NPV**. In addition, it is clear that an increase in the corporate tax rate has a much greater impact than an increase in the discount rate.

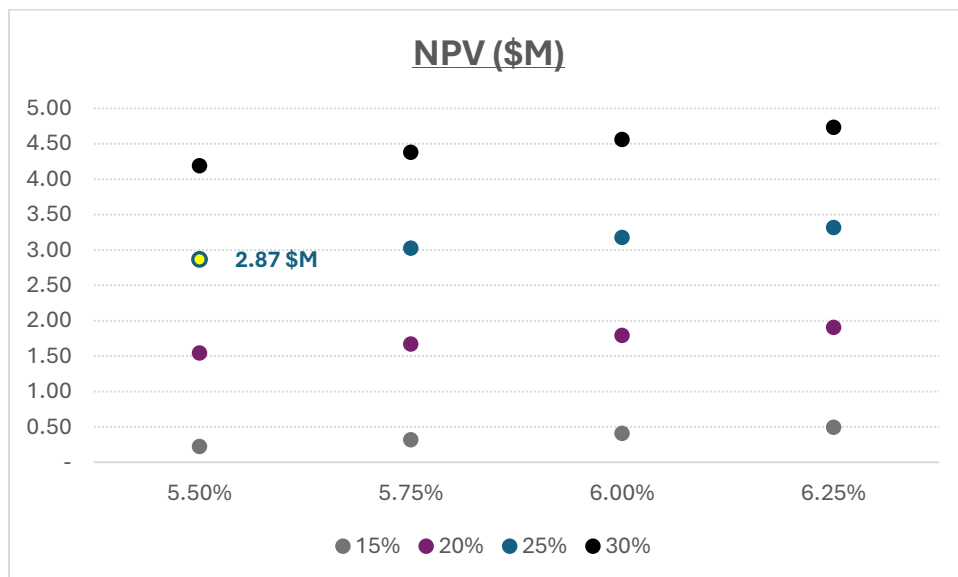


Figure 21. Rates Analysis Figure.

#### 4.7. Risk Analysis

- **Counterparty Risk:** An essential risk to consider is counterparty risk. If there is **uncertainty** regarding the lessee's ability to make payments, the SPV may struggle to repay its debt. Therefore, it's crucial to thoroughly analyze the

financial health and reliability of the lessee to mitigate this risk and ensure the stability of the financing arrangement.

- **Depreciation and Market Conditions:** The value of assets, such as aircraft, can decrease over time due to factors like technological advancements, market oversupply, or regulatory changes.
- **Residual Value Risk and Loan to Value Considerations:** Asset finance arrangements can be intricate due to the need for detailed negotiations on terms such as maintenance obligations and end-of-term options. One key complexity arises from the **residual value risk, the risk that the asset's value at the end of the financing term will be lower than anticipated**. To mitigate this risk, lenders typically assess the **Loan to Value (LTV) ratio**, ensuring that the loan amount is a conservative percentage of the asset's initial market value. This approach helps protect lenders in case the asset's value declines more than expected.
- **Industry Cyclicalities and Payment Risk:** Asset-intensive industries like aviation are highly susceptible to economic cycles. **During downturns, the reduced demand can lead to a drop in asset values and put airlines under financial strain**, potentially compromising their ability to meet rental payments. This cyclicalities amplifies the risk for both lenders and lessors, who may face uncertain income streams, especially if the lessee struggles to maintain profitability.

## 5. Conclusions

Some of the most important conclusions that must be gathered after the case analysis are:

- **Importance of Understanding and Managing the Fiscal Situation of Each Country:** A deep understanding of the tax regulations and fiscal policies in each jurisdiction is critical. Effective management of these variables ensures the tax lease structure is optimized, leveraging local tax advantages and avoiding compliance risks. Differences in corporate tax rates, depreciation allowances, and interest deductibility across countries can significantly influence the overall profitability of the transaction.
- **Interest Rates: Higher interest rates amplify the adequacy of a tax lease.** Elevated rates result in larger tax deficits early in the deal, enhancing the value of the structure. For example, a tax lease with an 8% loan generates more value compared to a 2% loan, due to the larger interest expense creating greater tax deductions.

- **Corporate Tax Rate:** A higher corporate tax rate leads to more significant negative tax results at the beginning of the transaction. This strengthens the value of the tax lease by increasing the tax shield effect, as the larger deficits generated in the early years can be offset against higher tax rates, thus increasing cash flow.
- **Importance of Timing:** Properly timing the depreciation and interest expenses is key to maximizing the tax benefits in the early years. The alignment of rental payments with debt service and tax liabilities is crucial to ensure the cash flow supports the financial structure without risking default.
- **Balancing Residual Value Risk:** By reducing the asset's lifespan in the deal to around 12 years instead of the full 20-year life, apart from LTV's metric utilization, the structure minimizes the residual value risk, offering flexibility for resale or renegotiation after the lease period ends.
- **Macroeconomic Conditions:** Inflation and economic cycles can influence interest rates and asset values, impacting both the cost of financing and the potential residual value. Adapting the tax lease structure to changing macroeconomic conditions ensures its viability and profitability throughout the lease term. Nevertheless, rental payments and loan profiles could be fixed.