



MSc Finance

Dissertation

Research topic:

*'Aircraft leasing: A review of Ireland's role in its past, present
and future development'*

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Aircraft leasing:

A review of Ireland's role in its past, present and future development

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Abstract:

This paper highlights various factors which contributed to the development of aircraft leasing both globally and in Ireland. It identifies and assesses the risks to the sector including to Ireland's status as a leading global hub. This includes those risks posed by new market entrants, EU and OECD regulations, talent shortage, the climate change movement and financial incentives offered by foreign jurisdictions. These incentives are important to multinational corporations and it costs states little to offer these to lessors considering setting up or relocating there. This has been highlighted as a key concern by the industry representative body, Aircraft Leasing Ireland.

The success of aircraft leasing has attracted several new market entrants, leading to increased competition as global investors search for yield in the face of deteriorating margins in traditional markets such as equities and fixed income (Bollen, 2019). Global stock markets fluctuated throughout 2018/19 with fears of a global recession growing (Reuters/Bloomberg, 2019). Airline bankruptcies have increased (Thoppil, 2019) and others are struggling to refinance debt (Taylor, 2018), having a knock-on effect for aircraft lessors.

The research shows that Ireland benefitted from being home to GPA under the leadership of Tony Ryan which led the development of aircraft leasing here. Growth in the sector owes much to consecutive Irish governments and government agencies creating a competitive fiscal environment. An unrivalled tax-treaty network and innovative tax regime developed over decades benefits aircraft lessors and other business sectors. Several Finance Acts have continued to introduce new incentives and allowances to minimise taxable income. A highly educated and experienced talent pool is key to Ireland's success and difficult to replicate elsewhere.

This paper adds to the academic body of work in this area by considering the historical development of aircraft leasing in Ireland and worldwide and the current status of the industry.

Keywords:

Business, aircraft, leasing, taxation, epistemology, qualitative interviews, inductive, mono-methods research.

Declaration:

This research paper is wholly my own work and all materials consulted and ideas garnered during the process of researching this dissertation have been properly and accurately acknowledged.

Enda Dunne

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List of Abbreviations:

a/c:	Aircraft
ABS:	Asset Backed Securitisations
ACMI:	Aircraft, Crew, Maintenance and Insurance
AIG:	American International Group
ALI:	Aircraft Leasing Ireland
ATAD:	Anti-Tax Avoidance Directive
CEO:	Chief Executive Officer
CIT:	Corporate income tax
EC:	European Community
EU:	European Union
FX:	Foreign Exchange
GECAS:	General Electric Capital Aviation Services
GECC:	General Electric Capital Corporation
GPA:	Guinness Peat Aviation
HEI:	Higher Educational Institution
IASB:	International Accounting Standards Board
IASC:	International Aviation Services Centre
IDA:	Industrial Development Authority
IFRS:	International Financial Reporting Standards
ILFC:	International Lease Finance Corporation
IPO:	Initial Public Offering
IRR:	Internal rate of return
FDI:	Foreign Direct Investment
LRF:	Lease rate factor
M&A:	Merger and Acquisition
MBS:	Mortgage Backed Securitisations
MNC:	Multinational Corporation
MRO:	Maintenance, Repair & Overhaul
OEM:	Original Equipment Manufacturer
P&L:	Profit and Loss
PDP:	Pre-delivery payment

SARP: Special Assignee Relief Programme
SLB: Sale lease back
SPV: Special Purpose Vehicle

Chapter 1: Introduction:

Aircraft leasing and the associated aviation finance industry are both fundamentally global in nature, serving client airlines and investors in countries worldwide. Since the mid 1970's when Guinness Peat Aviation (GPA) was formed, the aircraft leasing sector in Ireland has developed to the point where approximately 50% of all commercial aircraft in operation today are leased instead of airline-owned. A similar percentage of all leased aircraft are managed from Ireland by a sector supporting 5,000 jobs and contributing in excess of €550m to the Irish economy annually (Cahill, 1997) (Maguire, 2018). This is a highly specialised sector with employee skillsets ranging from Treasury and Tax to IT, Corporate Finance, Law and Aircraft Engineering. The demand for additional experienced personnel remains consistently high across all of these areas (Garry, 2016). This highlights the importance of the aircraft leasing sector to the Irish economy, particularly in light of the efforts by foreign governments in Hong Kong, India, China, Dubai and Singapore to lure aircraft lessors from Ireland to their countries (CAPA, 2018) (Money Glitz, 2018).

Ireland has long been associated with aviation, originally because of its geographic location on the eastern side of the Atlantic Ocean. This led to pioneering aviators such as Alcock & Brown (Villiers-Tuthill, 1986) and Amelia Earhart (Ware, 2014) touching down here in their record-setting transatlantic flights. As the aviation industry developed, Irelands location meant it became strategically important as a refuelling point for transatlantic commercial airliners (Warner, 2001). These events were fleeting but significant in highlighting the importance of Irelands location. The refuelling requirement subsequently reduced with the development of more fuel-efficient long-range jet-engined aircraft. All of these events helped Ireland to develop an indigenous aviation industry, providing navigation, transit, refuelling and maintenance services from the dawn of the age of commercial aviation to the present day.

However, there appears to be no obvious reason to expect that the leasing of commercial aircraft as a business model would develop as an industry in Ireland to the point of it being seen as a leading global hub of the aircraft leasing and aviation finance

industries. In this regard, the research has highlighted a gap in academic work focussing on the birth and development of the aircraft leasing and aviation finance sectors and in particular, Ireland's role in this. The literature review indicates that the majority of data is in the form of industry-led research articles and discussion pieces. These are of an informational and promotional nature, predominantly authored by professional services firms such as KPMG, PwC and Grant Thornton (KPMG, 2017) (PwC Ireland, 2019) (Grant Thornton Ireland, 2018). The majority of academic research associated with aviation and aircraft leasing focusses instead on the global airline industry and specifically on topics relating to airline business models (Urbana et al., 2018), airline revenue and profitability (Bourjade et al., 2017), airline fleet planning (Bazargan and Hartman 2012), and the airlines choice of leasing over purchasing aircraft (Allonen, 2013).

Therefore, the author proposed a dissertation research paper dedicated to addressing this gap by charting the evolution of the industry in Ireland and identifying the various factors which led to Ireland becoming home to the majority of leading aircraft lessors (Maguire, 2018). The paper focuses on highlighting fiscal and regulatory incentives formulated by successive Irish governments to encourage investment and growth. It includes an overview of the current status of the aircraft leasing sector. Finally, the paper includes an investigation into the risks facing the sector and Irelands status as a leading global hub. As well as conducting a comprehensive literature review, the author interviews a range of key executives from aircraft leasing and associated sectors in Ireland and overseas in order to gain valuable insight into the research topic.

Chapter 2: Literature Review:

The following literature review presents an overview of the various factors which contributed to the development of the aircraft leasing and aviation finance industries in Ireland. It references research published in various industry journals, academic papers, case studies, industry papers, media articles, biographies of key industry figures, etc and is formatted under a range of headings as follows:

- Foundation of aircraft leasing;
- Development of the aircraft leasing industry in Ireland;
- Support of Irish governments and government agencies;
- Taxation structures and incentives;
- Professional services firms;
- Irish education system and workforce

2.01: Foundation of aircraft leasing:

Aircraft leasing as a business sector was first developed in the USA in 1953 when George Batchelor, an aviation entrepreneur pioneered the concept of leasing used aircraft when he founded International Air Leases Inc. Batchelor was a US Army Air Corp pilot in World War II. After leaving the military in 1947 he took advantage of the opportunity to purchase cheap surplus military aircraft the US military were selling off and converting them for commercial use as charter aircraft. In his case it was a DC-3 he purchased for \$3,000 and used to build his own airline, Arrow Air. In 1953, struggling to succeed in the highly competitive US airline market which was dominated by 7 big players, Batchelor shut down Arrow Air to focus his attention on aircraft maintenance and aircraft leasing instead (Reed, 1992).

The industry continued to develop into the 1960's and early 1970's with McDonnell Douglas (a major US aerospace manufacturer and defense contractor formed by the merger of McDonnell Aircraft and the Douglas Aircraft Company in 1967) developing an aircraft vendor finance subsidiary (the McDonnell Douglas Finance Corporation) to support its commercial passenger aircraft sales (Guzhva, Raghavan and D'Agostino,

2018). McDonnell Douglas Inc. subsequently merged with Boeing in 1997 and the McDonnell Douglas Finance Corporation was renamed as the Boeing Capital Corporation which continues to provide lease and loan financing for Boeing commercial aircraft and equipment, corporate aircraft, space and defence products (Aviation Week, 1997).

Founded in California in 1973 by Steve Udvar-Házy and the father-and-son partnership of Leslie Gonda and Louis L. Gonda, International Lease Finance Corporation (ILFC) was another of the original independent aircraft leasing companies and it grew to become the second largest aircraft lessor in the world until its sale to an insurance group, American International Group Inc. (AIG) for US\$1.3 billion in June 1990. It was subsequently sold to AerCap for US\$7.6 billion in December 2013 (McCann Fitzgerald, 2019).

2.02: Development of the aircraft leasing industry in Ireland:

In the early 1970's, the seasonal and highly cyclical airline industry had been rocked by a number of terrorist attacks. The 1970 bombing of a Swissair flight to Tel Aviv killed all on-board and despite an explosion on-board, an Austrian Airlines flight managed to return to Frankfurt (New York Times, 1970). These events, along with a number of aircraft hijackings affected passenger numbers and when combined with the Oil Crisis of 1973 which saw fuel prices increase dramatically (Corbett, 2013) it resulted in a sharp drop in income for global airlines. This was exacerbated by overcapacity in the sector (Aldous, 2013). Aer Lingus, then Ireland's national carrier, had the additional disadvantage of a declining tourism industry in Ireland due to the 'Troubles' in Northern Ireland.

Aer Lingus had placed an order with Boeing in 1967 for two new B747 'Jumbo Jets' for their transatlantic operations, with the aircraft due to deliver in 1971. Transatlantic air traffic demand had fallen dramatically in the time between the aircraft order and delivery, and the airline didn't have sufficient work for the two aircraft. Larger airlines typically place any surplus aircraft, particularly widebodies such as these, into a parking and storage programme during periods of economic downturn, but this wasn't

an option for a small airline like Aer Lingus. Aer Lingus decided to focus on its aircraft leasing operation and to try find leases for the B747 aircraft. Sean Daly from their Sales Department was appointed to oversee the leasing operation, but a car accident ruled him out of action for a year. Tony Ryan, an Aer Lingus manager with experience of international airport operations with the company had recently moved back to Ireland and was nominated as Daly's replacement (Avolon, 2016).

(Royal Irish Academy, 2016) and (Aldous, 2013) describe how Tony Ryan and Aer Lingus managed, through extensive travel, meetings, tenacious negotiation and a slice of good luck to eventually 'wet-lease' a B747 aircraft to Air Siam. The deal included Aer Lingus pilots, engineers, support personnel, in what is known as an Aircraft, Crew, Maintenance and Insurance lease (ACMI). It was an unusual deal which included Tony Ryan himself moving to Thailand with his family to oversee and manage the operation of the lease. Ryan had managed to put the leasing deal together in spite of the fact that there was no shortage of B747 aircraft worldwide. With the global recession, several airlines had been forced to place their surplus aircraft in parking and storage programmes. New production aircraft were also being parked at the Boeing manufacturing facility in Seattle awaiting customers. Ryan's reputation within Aer Lingus and the industry was greatly enhanced by putting together a complex deal from which Aer Lingus made a US\$3 million profit in the first year alone (Aldous, 2013). The success of this project led to Tony Ryan becoming a more focussed and entrepreneurial individual with an ambition to develop an independent aircraft leasing platform which would act as a broker for global airlines to offload their aircraft during seasonal off-peak periods or economic downturns (Aldous, 2013).

A combination of Tony Ryan's ambition to set up an aircraft leasing platform and an Aer Lingus policy to focus on developing more ancillary revenues from non-core activities led in 1975 to the formation of a joint-venture with a London merchant bank called Guinness Peat in which Aer Lingus was a minority shareholder. They founded an aircraft leasing company by the name of Guinness Peat Aviation (GPA) based in Shannon with Tony Ryan as a minority shareholder and Chief Executive Officer (CEO). As former CEO of Aer Lingus David Kennedy noted: While Tony Ryan had discussed the

option of setting up his own leasing company in Asia, the backing of a reputable state airline such as Aer Lingus and a City of London Bank such as Guinness Peat lent the GPA platform a level of credibility that it would otherwise have struggled to achieve (Aldous, 2013) (Avolon, 2016).

Being a pioneer and having a so-called 'first-mover' advantage in any business sector or product category is no guarantee of continued success as the business grows and has both its advantages and disadvantages (Markides and Sosa, 2013). GPA grew through hard work and extensive worldwide travel by Tony Ryan and his colleagues to gather all relevant forms of market intelligence. This included finding out which airlines had surplus aircraft, when and how long they were available for and how much money the airlines wanted for them. Crucially, they also researched which airlines or other customers may need these surplus aircraft for their own operations. It was also vital to know which airlines had placed orders for new aircraft with the Original Equipment Manufacturers (OEM's). The strategy here was to identify any gaps between an airline's current fleet requirements and the delivery of these new aircraft (Aldous, 2013) (Avolon, 2016). The aircraft leasing industry was still relatively small at the time with GPA's main competitor being the California-based ILFC. GPA had developed from being an aircraft broker into an aircraft owner itself with a growing fleet of aircraft which it leased to airlines without the capital to buy their own. This level of growth in building its own fleet required GPA to have access to capital and although it was part-owned by a bank it had to source investment capital from external parties. Tony Ryan brokered a number of deals which brought new investors into GPA, firstly Air Canada and subsequently General Electric Capital Corporation (GECC), the investment arm of General Electric although the latter would be short-lived (Aldous, 2013).

The hard work put in by its travelling executives had resulted in GPA growing to the point of generating a net profit of US\$265 million on a turnover of US\$2 billion in 1991 along with an OEM order placed in 1990 for 700 new aircraft worth \$17 billion. Having lost GECC as a shareholder, the company secured fresh capital from new investors in the form of US insurance giant Prudential and the Japanese Long-Term Credit Bank in

a private placement of US\$100 million of convertible preferred shares. In 1992, needing additional capital to finance the pre-delivery payments (PDP's) (Lessard, 2008) which were coming due for its new aircraft orders, GPA decided to launch an Initial Public Offering (IPO). This was during a global recession in which airlines were incurring huge losses and GPA's own returns were falling. Tony Ryan and the GPA Board had declined to float the company during a more opportune period in the late 1980's when markets were buoyant, and GPA was in a less precarious financial position. GPA management, who had been encouraged to invest heavily in company shares themselves were reluctant to accept the various media and financial industry analysts' warnings about the prospects of an IPO not being successful at this time. In a study on the impact of pre-IPO media coverage on the decision to withdraw an IPO, media attitude was found to have a negative impact. The probability of withdrawal and a 1% increase in media coverage was found to result in a 34% increase in the probability of withdrawal of the IPO. These results support the idea that even when media coverage does not supply new information during the IPO process, it plays a significant role in shaping investor confidence in company valuations, which may influence the final outcome of the IPO process (Amaya et al., 2107). Critically, GPA management also failed to have the flotation underwritten, which may have provided a reality check on their target share price. In addition, they persisted with the inexperienced Japanese Nomura Bank leading the IPO instead of the more experienced Goldman Sachs. The experience and reputation of the lead underwriter and bank in an IPO are key factors in predicting a successful return (Dunbar and Foerster, 2006). These factors contributed to the IPO ultimately failing to attract sufficient investors in key markets such as the USA and Japan. With poor take-up the flotation was eventually abandoned by GPA, citing concerns over a fall in equity markets in the previous week, difficulties with a number of share offerings in the US and a price war in the American airline industry (Cummins, 2002).

The failed stock market flotation which cost the company US\$20 million in fees alone, saw the value of the company fall by over 20%. PDP's of US\$2.9 billion on new aircraft were due in the 1992 financial year. The indication of an imminent reduction of GPA's credit rating from ratings agencies Moody's and Standard and Poor's would make it

more expensive for GPA to borrow money in the financial markets (Brown, 2009) (Aldous, 2013). Tony Ryan refused to accept a lower than expected share price. He also declined to opt instead for a Direct Listing of GPA shares on the New York, London and Dublin stock exchanges without seeking to raise money or sell a quantity of shares. This strategy, as recommended by the Irish financier Dermot Desmond, would have reaped a benefit from all of the IPO preparatory work (Aldous, 2013). This led to a loss of confidence in the company by product, credit and capital markets. The resulting financial collapse led to approximately 40% of GPA employees losing their jobs and personal investments including Tony Ryan and the majority of the senior management team. GECC returned to bail out the company, buy GPA's best aircraft at good rates and gain control of its remaining assets and most of its staff without being exposed to its debts (Cahill, 1997) (Brown, 2009) (Aldous, 2013). Polaris, GE's own aircraft leasing subsidiary was merged with the bulk of the GPA platform to form General Electric Capital Aviation Services (GECAS) which is now the worlds largest aircraft lessor and is still based in Shannon. The remainder of GPA was subsequently sold to Texas Pacific Group, changing its name to AerFi. AerFi was then acquired by debis AirFinance, a DaimlerChrysler affiliate. It was eventually sold to Cerberus Capital in 2005 and renamed AerCap, which is now the second biggest global aircraft lessor after its purchase of ILFC from AIG in 2013 and it is based in Dublin. Many of the current crop of aircraft leasing executives throughout the industry learned their trade at GPA or GECAS (Harris, 2014).

2.03: Support of Irish governments and government agencies:

From the beginning of the 1930's, successive Irish governments pursued industrial and economic policies of protectionism and self-sufficiency. These were ultimately detrimental to the development and growth of the new Irish economy by suppressing the potential normally realised through competitiveness and entrepreneurial activity. However, the first coalition government of 1948-51 opted instead for a more pro-active industrial development policy with the formation of the Industrial Development Agency Ireland (IDA). The IDA identified that the export-led model of industrialisation would be the best method for developing the Irish economy (Gorman and Cooney, 2007) (Donnelly, 2013). By 1956, the IDA's efforts were strengthened by the

introduction of capital and training grants and a 50% tax relief for 5 years on exports which would eventually develop into the competitive 12.5% corporate tax rate in Ireland today. In 1994, the IDA was restructured into the three independent agencies of Forfás, the umbrella agency which would focus on developing policy; Forbairt (now known as Enterprise Ireland) which was responsible for promoting indigenous Irish industries; and IDA Ireland, which assumed responsibility for developing the critical area of foreign direct investment (FDI) (Donnelly, 2013).

During its development GPA received support from various Irish government agencies including the Shannon Development Company which had been established with a mandate to promote the Shannon region of Ireland to aviation investors. Its aim was to develop a 'World Aviation Centre' at Shannon for new start-ups to set up business and established businesses to expand their operations. In addition to its core business of aircraft leasing, GPA was party to a range of joint-ventures in the Shannon area including Shannon Turbine Technologies (jet engine component repairs), Shannon Aerospace (aircraft maintenance, repair & overhaul) and GPA Expressair (aircraft painting) (Quinlan, 1992). The World Aviation Centre concept subsequently formed part of Shannon Group plc and became known as the International Aviation Services Centre (IASC). The Shannon Free Zone is now home to sixty firms from the aviation sector, employing 2,500 people in the region (Shannon Group, 2018). These aviation businesses provide a broad range of products and services to airlines and leasing companies in Ireland and worldwide. Payments to Irish-based suppliers from the aircraft leasing sector in 2016 was approximately \$320m (Thompson, Leonard, Frye and Doyle, 2018).

A new industry representative body by the name of Aircraft Leasing Ireland (ALI), set up in conjunction with Ibec, the biggest lobbying group in Ireland for business, was launched in July 2018 by the Irish Minister for Finance, Paschal Donohoe. This new body has four main aims:

- Have a single, coordinated voice on behalf of aircraft leasing companies based in Ireland;

- Develop the skills and education that will lead the way to the next generation of aircraft leasing executives in the industry and the other support industries (e.g. accounting, tax, technical);
- Advocate for the expansion and improvement of Ireland's double tax treaty network;
- Ensure Ireland remains a very competitive place to base your headquarters if you're an aircraft leasing company (Aircraft Leasing Ireland, 2018)

Working alongside Ibec, ALI aims to work with Irish government entities such as the Department of Finance and Department of Transport and provide them with a single body to talk to when they're looking for feedback on different policy initiatives. This is as opposed to having numerous disparate conversations, making the process more efficient for both sides (Aircraft Leasing Ireland, 2018).

2.04: Taxation structures and incentives:

“High taxation levels are often regarded as an important contributor towards low employment levels and unsatisfactory economic performance in Europe. Accordingly, some commentators recommend a substantial reduction in tax levels, particularly on taxes on employment, to revitalise European economies” (O’Connor, 2013). Being based in the Shannon Free Zone meant that GPA paid a reduced corporation tax rate of 10% on all lease revenues which compared positively with other European Community (EC) countries (Nolan, 1992). This corporation tax rate was a special incentive introduced by the Irish government in 1956 to help attract and develop FDI to the country. This was maintained by successive governments and promoted by state agencies (Donnelly, 2013). At 12.5%, Ireland’s corporate tax rate is only higher than that of Bulgaria (IDA Ireland, 2016). This helps to attract multinational corporations (MNC’s) such as Apple, Google, Amazon, Microsoft, eBay, Facebook, Intel, PayPal, Yahoo, AOL, Pfizer, Johnson & Johnson, Twitter and Boston Scientific to the country. MNC’s now account for approximately 90% of exports in the manufacturing sector and provide employment for approximately 10% of the Irish labour force. These MNC’s are seen by some as being “both a blessing and a curse” due to a recent increase in the scrutiny of Irelands taxation policies (Beard, 2018).

Aircraft lessors who are tax-resident in Ireland may claim capital allowances on any expenses incurred on particular classes of qualifying assets which now includes plant and machinery. Such capital allowances may be classed as expenses for the calculation of annual profit & loss for the lessor's corporation tax. They are calculated on a straight-line basis which results in a 12.5% rate of tax depreciation per year. In practice, this means an 8-year write-down period for the cost of an aircraft or engine irrespective of the projected life of that asset. This allowance is claimable against any owned asset used for leasing activities during the relevant accounting period (Office of the Revenue Commissioners, 2018).

Ireland is considered a prime setting for the establishment of specialist securitisation entities holding assets such as bonds, stocks and commodities (known as Section 110 companies) with favourable tax rules for the asset-backed securitisation frameworks popular amongst aircraft lessors and structured finance for corporate entities (Dillon, 2018). These Section 110 companies are special purpose vehicles (SPV's) which are resident in Ireland for taxation purposes, holding and managing qualifying assets (PwC, 2018). The Finance Act 2011 incorporated amendments to the Taxes Consolidation Act 1997 for the category of 'qualifying assets' so that they now incorporate plant and machinery such as ships, rolling stock, mining & drilling equipment, vehicles and most importantly, aircraft (Dillon, 2018). Ireland's tax system now permits SPV's to attain a tax neutral position when correctly established. These Section 110 SPV's are commonly used by the aircraft leasing sector as they allow non-Irish resident investors to invest in a capital market transaction. The Section 110 SPV's may also gain access to Ireland's wide-ranging double-tax treaty network (Burger, Butler, Hynes & O'Callaghan, 2018).

Ireland has a comprehensive double-tax treaty network with approximately 74 countries which provides for 0% withholding-tax and income tax on inbound lease rental payments, dividends, royalties and interest. Furthermore, there are zero withholding taxes to be paid on outbound lease rentals (PwC Ireland, 2018) (Office of the Revenue Commissioners, 2018). Ireland also has favourable VAT and Stamp Duty rules for tax-resident aircraft lessors. According to a publication by the Irish Tax

Institute, “Ireland operates a zero-rated VAT regime for international aircraft leasing activities; therefore, no Irish VAT applies to aircraft leasing and lessors have full VAT recovery on costs attributable to aircraft leasing activities. The VAT place-of-supply rules changed on 1 January 2010, with the application of the reverse-charge mechanism to the lease of aircraft by Irish-based lessors to European Union (EU)-established airlines. As a result, Irish lessors are not required to charge Irish VAT, and instead the airline is responsible for paying any VAT arising in its country of establishment. Most EU countries apply the zero rate of VAT where the aircraft is leased to an airline that operates predominately on international routes, meaning that VAT is generally not a cost for either lessors or airlines”. The report goes on to say: “Section 113 of the Stamp Duties Consolidation Act 1999 specifically provides that instruments for the sale or transfer of aircraft, or any part, share, interest or property of or in aircraft, are exempt from stamp duty. Furthermore, lease novations arising from aircraft transfers should not give rise to Irish stamp duty. The result is that most day-to-day aircraft leasing transactions are exempt from Irish stamp duty” (Irish Tax Institute, 2014, p. 95).

Regarding the effect of a country’s taxation policy on its ability to attract FDI, higher corporate taxation rates have a consistently negative effect on the likelihood of a country being chosen as a location by MNC’s. Companies in the financial sector are the most sensitive to any changes in corporation tax rates, with an estimated marginal effect more than double that of other sectors. This has implications for Ireland, given the volume of FDI MNC’s in the financial services sector. Firms with greater total assets are also more sensitive to corporation tax rates in their location decision (Economic and Social Research Institute, 2014). Any increase in international tax competition resulting in a reduction in corporate tax rates elsewhere (including the US) has the potential to reduce the attractiveness of Ireland as a destination for MNC’s (OECD, 2018).

2.05: Professional services firms:

Ireland is home to a comprehensive range of independent third-party legal, financial, taxation and technical professional services firms such as KPMG, PwC and Grant

Thornton who provide a range of services to aircraft lessors using experienced personnel and industry-specific product offerings (KPMG, 2017) (PwC Ireland, 2019) (Grant Thornton Ireland, 2018). The outsourcing of work to professional services firms allows aircraft lessors to reduce personnel costs and focus instead on core organisational activities while leveraging external resources, skills, knowledge, capabilities and competences (Hätönen and Eriksson, 2009).

The industry research and lobbying work carried out by the new industry representative body for aircraft leasing in Ireland, ALI, takes place alongside the lobbying by individual professional services firms such as KPMG who have prioritised a number of key areas for government focus including:

- Initiatives to attract more capital markets activity to Ireland, whether this is by attracting more investment banks to establish full-service operations, building on what the Irish Stock Exchange does on the debt side, or attracting more aviation banking activity to Ireland;
- Building out the double tax treaty network, based on the good relationship between industry and government which has proved effective to date in developing a strong network of tax treaties;
- Initiatives to improve recruitment and retention of experienced personnel by making Ireland a more attractive location for industry executives to relocate to. This includes availability of housing, international school education, work visas for family members as well as an attractive income tax regime (Woods, 2019).

2.06: Irish education system and workforce:

Irish government agencies heavily market the fact that Ireland benefits from being one of the only English-speaking countries in the EU with approximately 1m current students in full-time education across primary (up to 12 years), secondary (12-18 years) and third-level education (18+ years) (IDA Ireland, 2018). There is a young, highly-educated workforce where 53.5% are educated to third-level compared to the EU average of 40% (IDA Ireland, 2018). Irish government initiatives propose making

the Irish education system and associated training programmes the best in Europe by 2026. Ireland has the youngest population in Europe, with one third under 25 years of age. Total population is forecasted to increase by almost 1 million people to 5.75 million by 2040 (IDA Ireland, 2018). Historically, education and skill levels has been found to rank second in importance to corporation tax in drawing MNC's to Ireland (Gunnigle and McGuire, 2001). It has been shown that the higher education sector in Ireland adds considerable gross value to the national economy, whether via state or other income. In the years 2010–2011, the gross income of Irish higher educational institutions (HEI's) was €2.6 billion, which generated gross output nationwide of €10.6 billion (Zhang, et al., 2017).

ALI has included in its launch proposal the intention to focus on education initiatives, with three main objectives:

- Educate future leaders in the skills and knowledge required to succeed in the world of aviation finance;
- Identify the skills and training needs of the industry and match up the educational resources to produce the talent required for the industry;
- Determine how Ireland can leverage its position as a global centre for aviation finance into the wider aviation community by identifying opportunities both domestically and globally where Ireland's high-quality education institutions, working with industry, can expand their training and skills offering on a wider global stage (Aircraft Leasing Ireland, 2018).

One of the key developments in Irish higher education in recent years was the establishment of the full and part-time MSc in Aviation Finance courses by the UCD Michael Smurfit Graduate Business School, currently the only course of its type in Europe. It is supported by the leading Irish aircraft leasing companies through internships, scholarships and research projects, aiming to advance students understanding of all aspects of aviation finance, with a specific focus on the practical features of global aviation markets. 92% of graduates from this programme were found to be employed within 6 months of graduation across a range of industry

sectors (UCD, 2019).

2.07: Summary:

The literature review has identified the various factors, key players, institutions and events involved in the development of aircraft leasing as a business sector. It highlights how a sometimes-random series of events could lead to key individuals getting the opportunity which they in turn made the best of. Personal fortunes were made, lost and made again in a high stakes business which is closely correlated to the highly cyclical global airline industry and where access to capital is always high on the agenda. The literature review brought a number of key issues to the authors attention for additional research, namely:

- The Asset Backed Securitisation (ABS) market, and its impact on lessors;
- The large lessor's quest to achieve 'Investment Grade' status;
- The possible impact of 'Base erosion and profit shifting' (BEPS) regulations;
- IFRS 16 (International Financial Reporting Standards), effective from Jan 1st, 2019;
- EU policy as it applies to aircraft leasing with regard to corporation tax in particular;
- The effects of global oil prices on airlines and aircraft lessors;
- The effects of a strong US Dollar on airlines in emerging market economies;
- The effects of interest rate volatility on aircraft lessors;
- The potential effects of Irish personal taxation on FDI and the leasing sector.

These issues have been incorporated into the set of questions to be asked during the interview phase.

Chapter 3: Research & Methodology:

3.01: Introduction:

In selecting the appropriate methodological approach for a proposed research question, it is important to bear in mind the theme and nature of the research topic and to apply a clear rational approach. Clearly defined research questions accompanied by a clear rationale for adopting the selected research methods and an acknowledgement of any potential limiting factors or ethical issues are critical to satisfying the research objectives.

3.02: Research Topic and Objective:

The topic of this research paper is alluded to in the title: '***Aircraft leasing: A review of Ireland's role in its past, present and future development***'. The paper aims to research the history of the development of the aircraft leasing industry in Ireland, to assess its current status and to identify and evaluate the key internal and external risks to Ireland's status in the sector. This objective of this paper is to address these issues by filling any informational gap through researching the literature dedicated to this field and formulating answers to the research questions.

3.03: Research Problem and Motivation for Study:

This research paper addresses the apparent gap in the academic literature relating to the development of the aircraft leasing industry both globally and in Ireland and the risks facing the sector now and in the future. The author has observed that in Ireland, it is generally known and accepted that aircraft leasing is an established and successful sector of the Irish economy. Tony Ryan is better known as the founder of Ryanair than for his role in aircraft leasing as the CEO of GPA. The author also found that the reasons for the sector being so successful in Ireland aren't well known outside of aircraft leasing. Even within aircraft leasing, relatively few people knew the history of the industry in Ireland or elsewhere.

An aircraft leasing business brings together professionals with a broad and diverse range of skillsets who work together in deal teams to complete aircraft lease

transactions. Outside of executive management there is little, if any, crossover of skills to other areas. This leads to people being subject-matter experts in their own specialisation only and while this high degree of specialisation contributes to a highly successful business model and sector, it is correct to research and appraise the various reasons for that success. Aircraft leasing has been highly successful but as with all business sectors, success doesn't happen overnight and cannot be replicated easily. The factors leading to this success in Ireland need to be highlighted so that they may be built upon. This applies equally to other business sectors which may benefit from the same approach. Similarly, the risks facing the industry should be identified and managed or mitigated against by those within the industry and the external parties which support it and ultimately depend on its continued success.

3.04: Research Questions:

The literature review has identified that there is plenty of data, commentary, informational literature and academic work on the disparate themes which have contributed to the development and success of the aircraft leasing industry in Ireland. These include the areas of taxation in Ireland and the EU; Foreign Direct Investment (both as a topic and as it relates to Ireland); the standard of education in Ireland; and the range and calibre of professional support service firms in Ireland. Separately, there is an abundance of research material and data dedicated to the field of aviation which is in itself a broad field of study. It incorporates aviation heritage; airport operations; airline operations; commercial, military and light aviation; fixed-wing and rotary-wing technology; satellite and rocket technology; airline fleet planning, etc. However, there is a shortage of work dedicated specifically to aircraft leasing or a cohesive academic work drawing together all of these elements as they relate to the aircraft leasing industry in Ireland in particular. This paper aims to address this gap in the academic literature by answering two main research questions:

- ***What factors led to Ireland becoming one of the leading global hubs of aircraft leasing?***

- ***What are the risks facing the aircraft leasing sector and Irelands status as a global hub?***

3.05: Methodological Considerations:

In order to adequately answer these research questions and satisfy the overall objectives of the research paper, an appropriate methodological approach is required. Research is the process of collecting, analysing and interpreting data in order to understand a phenomenon (Leedy & Ormrod, 2001). There are 3 common research approaches to research: quantitative, qualitative and mixed-methods. Quantitative research methods are concerned with measuring data of a numerical nature, the 'how many' or 'how much' approach to the research data while qualitative research methods are characterised more by the research aims, which typically relate to understanding some aspect of life or business and which generally generates words rather than numbers, as data for analysis. The mixed-methods approach to a research problem focuses on how the qualitative and quantitative techniques may be integrated, with it being said that more benefit may come from researchers developing skills in both realms rather than debating which method is superior (McCusker and Gunaydin, 2015).

3.06: Research philosophy:

The 'research onion' model developed by Saunders et al. (2009) as shown in Figure 1 here provides a framework for assessing which research method and strategy is most appropriate for addressing the relevant research question. It is used here to demonstrate the basis upon which each layer is chosen. In this case, the aim of the research is to chart the development of aircraft leasing and to identify and assess the specific risks to this business sector.

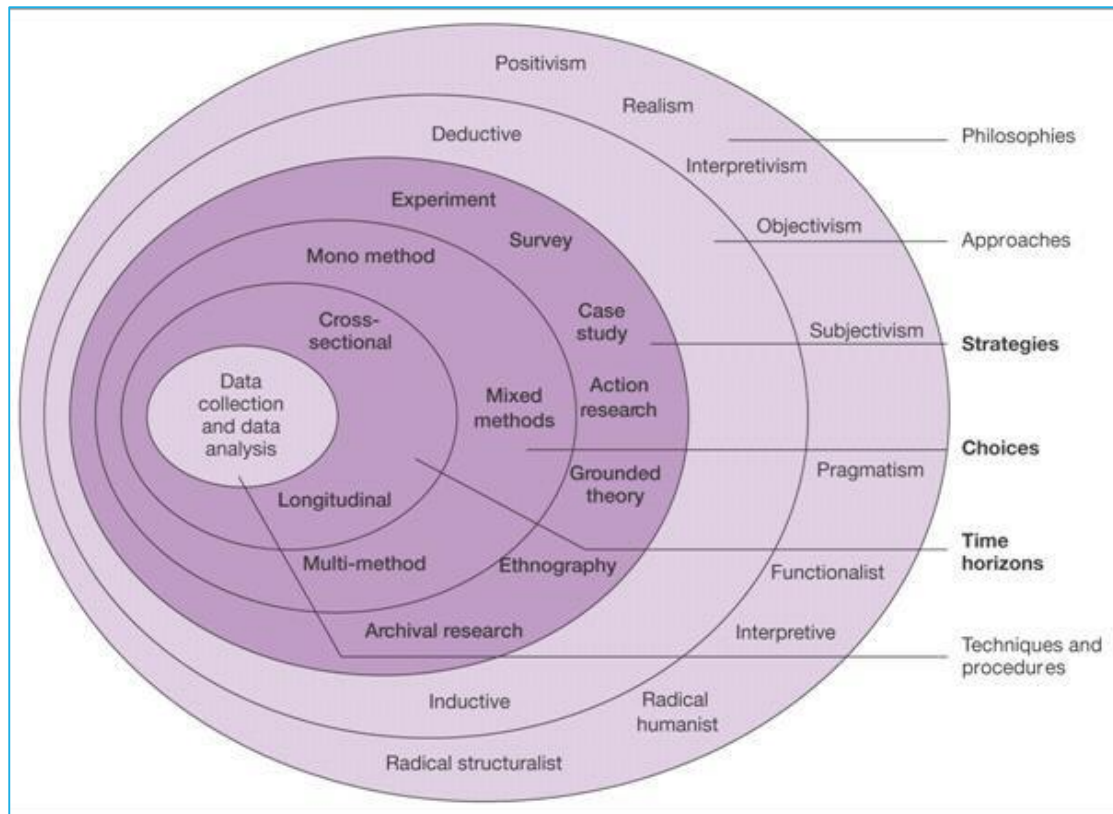


Figure 1: The research 'onion' (Source: © 2008 Saunders, Lewis and Thornhill)

The term 'research philosophy' refers to a system of beliefs and assumptions about the development of knowledge, which is what we are doing when embarking on research. All levels and types of research involve the researcher developing new knowledge (Saunders et al., 2009). During a research project, a researcher may unconsciously make a number of types of assumption around the three main research philosophies whether aware of them or not. These include **epistemological** assumptions (relating to human knowledge), **ontological** assumptions (in relation to realities encountered in the research) and **axiological** assumptions (the extent and ways our own values may influence the research process) (Burrell and Morgan, 1979).

The outer layer of Saunders et al.'s research 'onion' relates to the research philosophies. Epistemological philosophy was selected for this research paper due to its being concerned with what constitutes valid knowledge and how it can be obtained (O'Gorman and MacIntosh, 2014, p. 58-60). In the context of the research 'onion', epistemological philosophy comprises three approaches to research: positivism,

realism and interpretivism (Saunders, et al., 2009) with the interpretivist research perspective which is a common model for the social sciences selected for this research paper. Interpretivism takes into account the various realities which are revealed by the perspectives of the different subjects in a research scenario, the theme of the research topic, the interpretation of the collected data and the nature and depth of the researcher's involvement in the area. Interpretivism generally allows the researcher to focus on understanding what is happening in a given context rather than just measuring it (O'Gorman and MacIntosh, 2014, p. 65).

3.07: Research approach:

The second layer of Saunders et al.'s research 'onion' model refers to the research approach, either deductive or inductive. This paper follows the inductive approach to the research which is oriented more towards discovery and process, has high validity, is less concerned with generalisability and is more concerned with deeper understanding of the research problem in its unique context (Ulin, Robinson and Tolley, 2004). This approach may end up with the same theory as a deductive approach but the theory would follow the data rather than vice versa as with deduction. The study of a small sample of subjects might be more appropriate than a large number with a deductive approach (Saunders et al., 2009, pg. 126).

The inductive approach emphasises:

- gaining an understanding of the meanings humans attach to events;
- a close understanding of the research context;
- the collection of qualitative data;
- a more flexible structure to permit changes of research emphasis as the research progresses;
- a realisation that the researcher is part of the research process;
- less concern with the need to generalise (Saunders et al., 2009, pg. 127).

This research paper has followed this inductive approach in working towards achieving the research objective. The inductive approach tends to be used to analyse qualitative

data (O’Gorman and MacIntosh, 2014, p. 65) and has been used in aviation related research papers using both mono-method (qualitative) (Georgiou, 2009) and mixed-method research choices (Oztekin and Luxhøj, 2010).

3.08: Research strategy:

The third layer of Saunders et al.'s research ‘onion’ model refers to the research strategy. The different research strategies are:

- Experiment
- Survey
- Case study
- Action research
- Grounded theory
- Ethnography
- Archival research

Some of these are associated more closely with the deductive approach and others to the inductive approach but they are not mutually exclusive (Saunders et al., 2009, pg. 141). The research strategy selected as most appropriate to this research paper is survey in the form of semi-structured interviews. This strategy was chosen after researching each item highlighted at the beginning of the literature review section and the additional topics highlighted for additional research in the literature review summary. This in-depth literature review largely satisfied the first research question about the birth and development of the aircraft leasing industry. However, the lack of academic research in the area meant that there was insufficient data to address the second research question. This led the author to the conclusion that only by reaching out to the people leading and shaping the aircraft leasing industry today could an appropriate level of insight be gained into the industry’s current status and the risks facing it, both in Ireland and globally. The literature review and the issues identified by the associated research contributed to the formulation of a set of questions to be asked during face-to-face and telephone interviews with a range of key executives from the aircraft leasing industry and associated areas of the aviation industry

including airlines, representative bodies, consulting and professional services.

3.09: Research choice:

The fourth layer of Saunders et al.'s research 'onion' model refers to the research choice. The different research choices are:

- Mono-method
- Mixed methods
- Multi-method

These choices apply to either quantitative or qualitative data which are used in business research to differentiate between both data collection techniques and data analysis procedures. Quantitative refers to techniques and procedures which generate or analyse numerical data. Qualitative refers to those which generate or analyse non-numerical data (Saunders et al., 2009, pg. 151). Mixed and multi-method choices are a relatively new research trend which combine both quantitative and qualitative data in a single research project in an effort to reconcile both methods and were found to offer an exciting mode of conducting business research (Antwi and Hamza, 2015). Mono-method research was chosen for this research paper because the non-numerical data generated by the interviews may be collected and categorised without the use of quantitative analysis methods which are predominantly used for the analysis of large numerical data-sets.

3.10: Research sample, time horizons and procedure:

The fifth layer of Saunders et al.'s research 'onion' model refers to the research time horizons. These are:

- Cross-sectional
- Longitudinal

This research is based on a cross-sectional study, using an anonymous semi-structured interview process as research strategy, supported by a set of 17 prescribed interview questions as a tool for data collection. Other research carried out on the aviation

industry is cross-sectional in nature, representing a snapshot in time of airline fleets, global traffic statistics, etc. (Gavazza, 2011) (Carter et al., 2006). The data was categorised using Microsoft Excel with tables, graphs and pie-charts generated to support the research objectives.

Research sample size is a key consideration as inappropriate, inadequate, or excessive sample sizes may influence the quality and accuracy of the research (Kotrlik and Higgins, 2001). According to research, “Other than selecting a research topic and appropriate research design, no other research task is more fundamental to creating credible research than obtaining an adequate sample. Ensuring that there is enough data is a precursor to credible analysis and reporting” (Marshall et al., 2013). Figure 2 shows that in approximately 76% of studies authored by three or more authors there were fewer than 30 interviews compared to 52% and 47% in double-authored and single-authored studies, respectively (Marshall et al., 2013). As a single-authored work, this research paper sits in the 11 to 20 interviews category which is the majority percentage of studies.

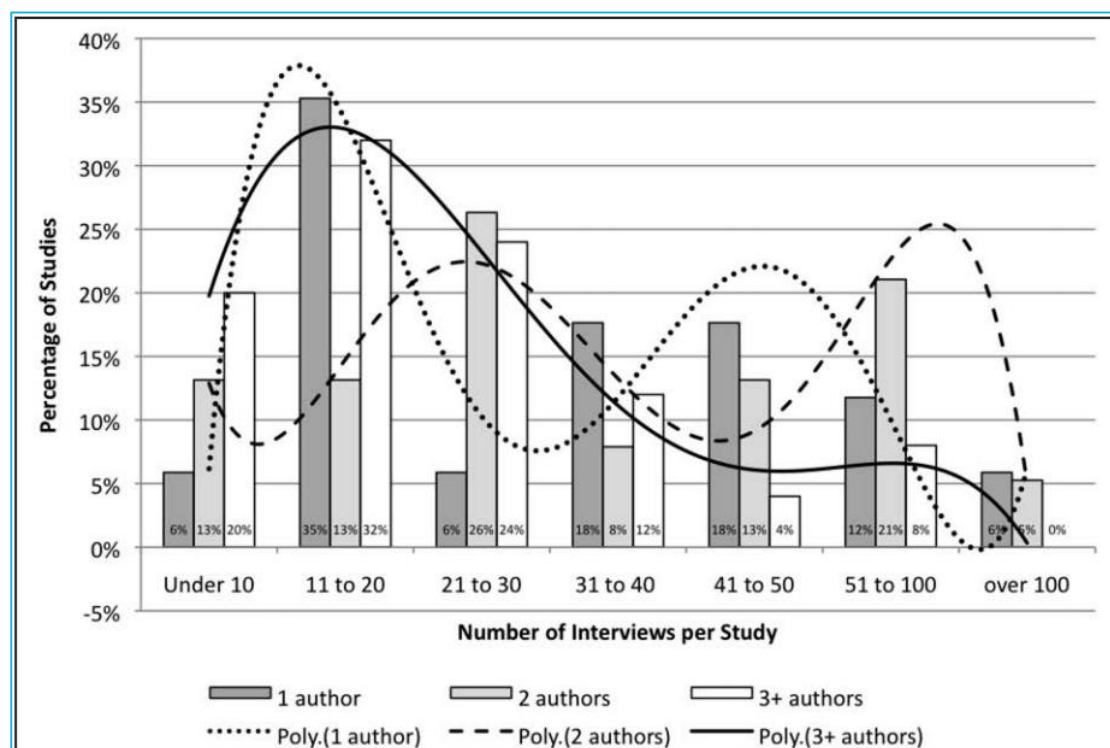


Figure 2: Number of interviews based on number of authors

Figure 3 depicts the research procedure employed in this paper. The choice of an inductive approach for this research was substantiated by the flexible structure permitting changes of research emphasis as the research progressed.

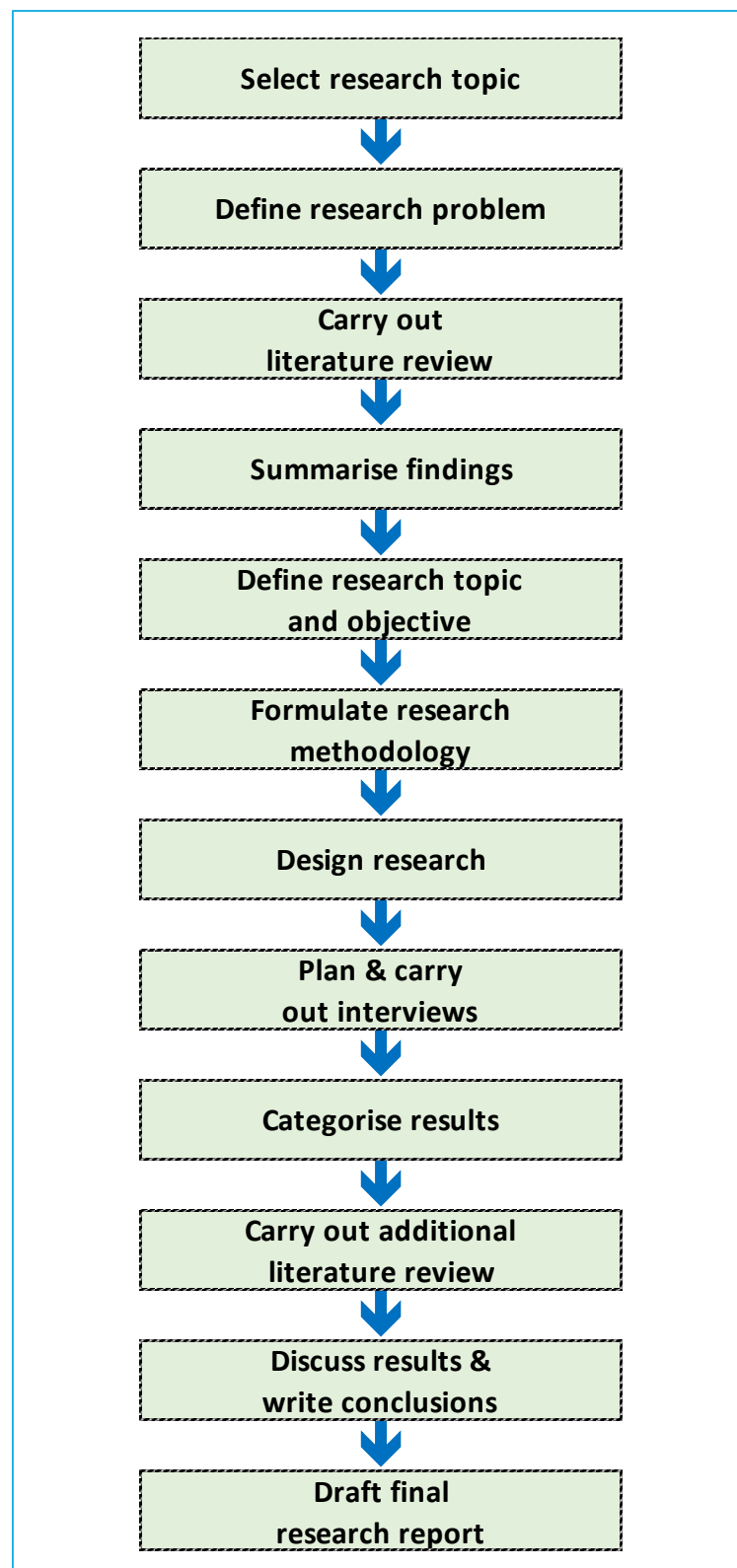


Figure 3: Research procedure

3.11: Research limitations and implications:

The main limitations of this research are the sample size, the time-specific limitations of a cross-sectional study and the vast scope of the research topic. The latter prevents detailed research of the multiple complex branches of the subject business sector. While high quality in nature, the relatively small sample size potentially hinders identifying and analysing the full range of risks that exist. The implications of these limitations have the potential to impact on the significance of the research conclusions.

3.12: Research interviews:

The interview questions were formulated after completion of the literature review and were largely formulated as a result of this extensive review of the industry. A preliminary interview was carried with a senior aircraft leasing executive in order to refine the set of questions and to identify any potential additional questions to ensure maximum benefit was gained from the exercise. This initial process was instrumental in finalising the final set of 17 questions for the remaining interviews as follows:

- *What factors do you think have led to Ireland becoming a global hub of aircraft leasing?*
- *What role did successive Irish Governments/Government agencies play in this development?*
- *Do you think the Irish Government/Government agencies still do enough to actively support the development and growth of the industry in Ireland?*
- *How important is Ireland's tax regime to aircraft lessors?*
- *What are the key risks facing the global leasing sector?*
- *What are the main risks to Ireland's status as the global hub of aircraft leasing?*
- *How critical do you think recruitment and retention is for the aircraft leasing sector in particular?*
- *Are new market entrants disrupting the sector? (Issues affecting profitability, competition for assets, lease rate factors, etc)*

- *What are foreign Governments doing to attract aircraft lessors to their jurisdictions?*
- *What effect do you think the ABS market is having on the traditional structure of aircraft lessors' fleets (managed vs. owned fleet) and their overall fleet strategy?*
- *What impact is the big lessor's quest to achieve 'Investment Grade' status having on the industry?*
- *What impact does IFRS 16 (International Financial Reporting Standards), effective from Jan 1st, 2019 have on airlines and aircraft lessors?*
- *Do you think EU policy in regard to corporation tax could affect the industry?*
- *What is the potential impact of 'Base erosion and profit shifting' (BEPS) regulations?*
- *What is the effect of a strong US Dollar on airlines in emerging market economies?*
- *What effect does interest rate volatility have on aircraft lessors?*
- *What are the effects of Irish personal taxation on FDI and the aircraft leasing sector?*

Any potential ethical or data protection issues or business sensitivities were avoided by not recording the interviews and not disclosing the identities of the interviewees or their employers herein. All handwritten interview notes were destroyed after the results were transcribed into a Microsoft Excel spreadsheet. The interviews were carried out with 11 senior figures from across the aviation sector and were invaluable for gaining an insight into the development of the aircraft leasing industry, highlighting key issues affecting the industry, and identifying the risks to Ireland maintaining its current status as the global hub of the industry. The interviewees were as follows:

- 1. President & CEO** of a new aircraft and engine leasing business with offices in Ireland and the USA;
- 2. Head of Sales** for a top-10 aircraft and engine leasing company with a fleet of 300+ aircraft and offices in Ireland and worldwide;

- 3. Chief Operating Officer** of a top-10 aircraft and engine leasing company with a fleet of 400+ aircraft and offices in Ireland and worldwide;
- 4. Chief Financial Officer** of top-10 aircraft and engine leasing company with a fleet of 350+ aircraft and offices in Ireland and worldwide;
- 5. Airline Consultant** based in Europe with 20 years of consulting and project management experience at major international airlines;
- 6. Chief Strategy Officer** for a top-10 aircraft and engine leasing company with a fleet of 300+ aircraft and offices in Ireland and worldwide;
- 7. Head of Group Tax** for a top-10 aircraft and engine leasing company with a fleet of 350+ aircraft and offices in Ireland and worldwide;
- 8. Chief Operations Officer** for a European low-cost airline;
- 9. Chief Risk Officer** for a top-10 aircraft and engine leasing company with a fleet of 350+ aircraft and offices in Ireland and worldwide;
- 10. President & Managing Director** of an aviation consulting firm supporting global airlines and airports;
- 11. Head of Aviation Finance & Leasing** for one of the Big Four global professional services firms.

Chapter 4: Analysis and Findings:

As the interviews progressed, common themes emerged in response to the prescribed set of questions, facilitating the categorisation of the results which is presented in this section. As expected, not all interviewees had comments for each of the questions due to specialising in different sectors of the aviation industry. This coupled with the fact that some of the interviewees had more than one answer to several of the questions meant that the results and analysis often feature more or less than a total of 11 answers. The author believes it is important to factor all answers into the categorisation process in order to get an accurate impression of the majority sentiment in each case. This section contains tabular and graphic categorisations of the data from the interviews. It also includes a review and discussion of the various responses in consultation with the academic and industry-specific literature for each of the question topics where required.

Question 1:

What factors do you think have led to Ireland becoming a global hub of aircraft leasing?

The answers to this question are presented in Table 1 below by response, number of responses and percentage of total responses with Figure 4 presenting the information graphically in a pie-chart as follows:

Response	#	%
Corporation tax	11	16%
Talent	11	16%
Tax treaty network	11	16%
Time zone	4	6%
Luck	3	4%
GPA/Tony Ryan	11	16%
Aviation heritage	5	7%
Tax depreciation	6	9%
Professional services sector	6	9%

Table 1: Question 1 responses

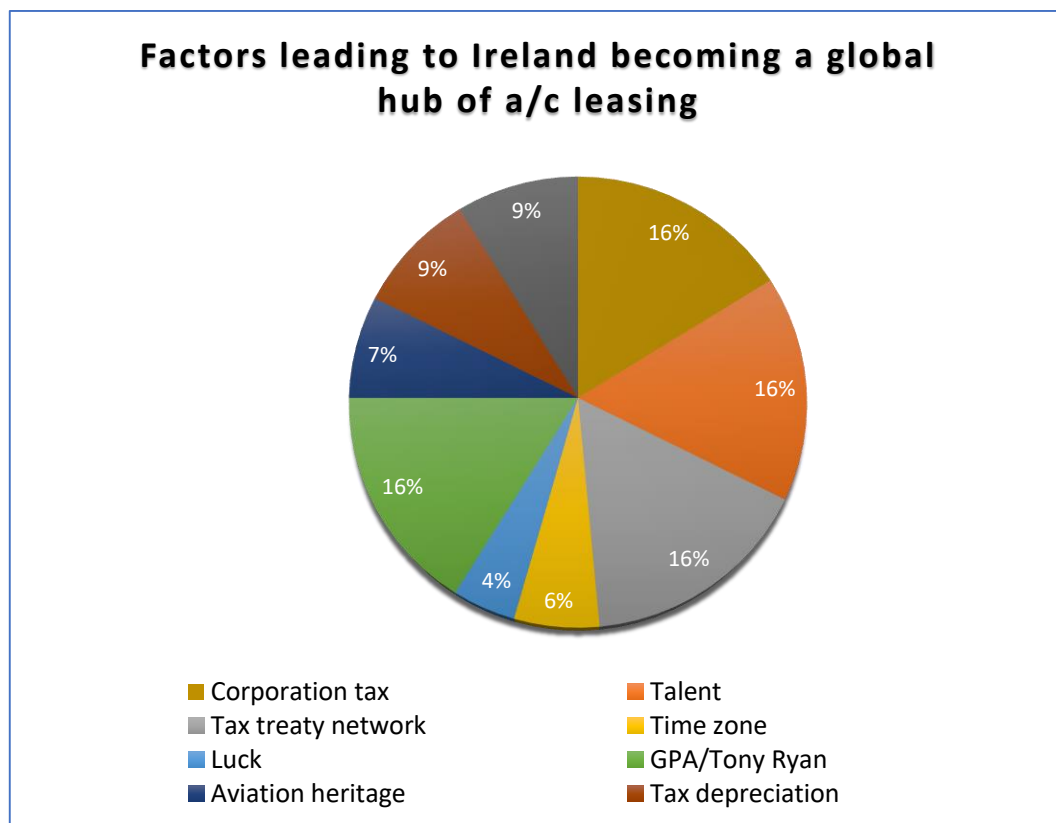


Figure 4: Question 1 responses breakdown

As expected, the influence of GPA and Tony Ryan feature highly among the responses alongside key infrastructural aspects of the Irish economy such as corporation tax, the tax treaty network, tax depreciation which are considered critical to the development of the industry in Ireland and a key factor in its continuing competitiveness. Also featured in the responses is the experienced aircraft leasing talent pool available in Ireland which has already been highlighted as having been largely developed and influenced by GPA in the early days of aircraft leasing in Ireland. Irelands rich aviation heritage is also cited as an influence as well the somewhat interesting element of luck which was certainly a factor in Tony Ryan's long and colourful career in aviation. It could be said that this element of luck was a factor in Ireland conveniently being located at the easternmost side of the Atlantic Ocean which was significant in early aviation.

Question 2:

What role did successive Irish Governments/Government agencies play in this development?

The answers to this question are presented in Table 2 below by response, number of responses and percentage of total responses with Figure 5 presenting the information graphically in a pie-chart as follows:

Response	#	%
Tax treaty network	8	27%
12.5% corporate tax	7	23%
Educated workforce	4	13%
IDA Ireland supports	4	13%
IFSC	7	23%

Table 2: Question 2 responses

Role played by Irish Govt. & Govt. Agenices

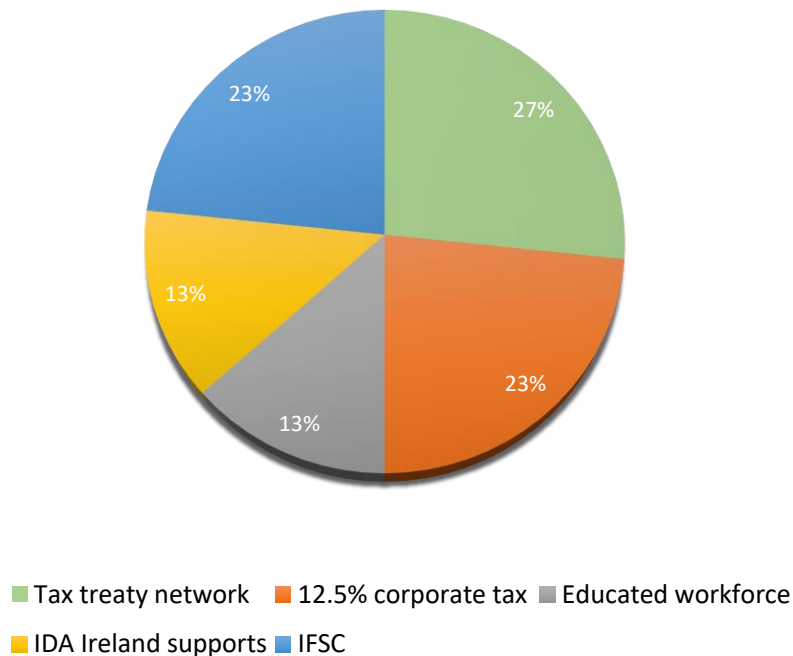


Figure 5: Question 2 responses breakdown

The responses to this question highlight the key roles played by successive Irish governments and government agencies in building a fiscal landscape which was initially focussed on opening the Irish economy up for FDI from MNC's. This strategy was maintained over time and extended to develop targeted policy around corporation tax, tax treaty networks, etc. IDA Ireland was noted as being particularly helpful by some interviewees, having provided assistance with such seemingly arbitrary but time-consuming tasks as locating suitably sized and priced office space in Dublin. The establishment of the IFSC in Dublin was cited as being a key factor in helping to promote the growth of aircraft leasing and financial services in Ireland. While GPA was based in the Shannon Tax Free Zone and GECAS still is, this is seen as a less attractive location than Dublin's docklands by people within the industry. As noted in the literature review, Ireland's educated workforce is a key element in promoting Ireland as an investment location by government agencies and it is highly again here as a significant factor in Irelands success.

Question 3:

Do you think the Irish Government/Government agencies still do enough to actively support the development and growth of the industry in Ireland?

The answers to this question are presented in Table 3 below by response, number of responses and percentage of total responses with Figure 6 presenting the information graphically in a pie-chart as follows:

Response	#	%
No	7	88%
Yes	0	0%
No comment	1	13%

Table 3: Question 3 responses

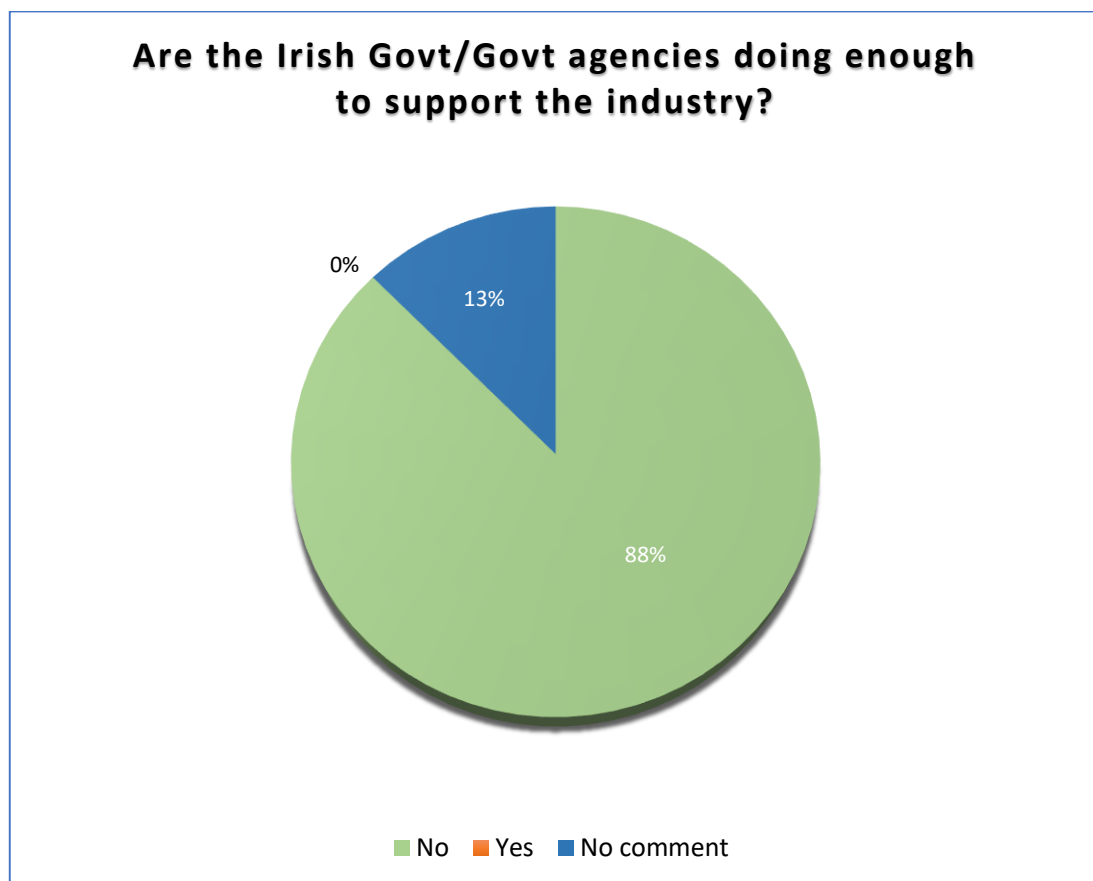


Figure 6: Question 3 responses breakdown

Of those who expressed an opinion, there was a consensus that the Irish government and government agencies were not doing enough to protect Ireland's status as a

leading hub of aircraft leasing and aviation finance. Interviewees highlighted how foreign governments are waging an economic battle against Ireland's status by offering a range of incentives to attract aircraft lessors and financiers to their jurisdictions. It is seen as critical to the future of the aircraft leasing and financing industries in Ireland that the Irish government continue to expand the current network of tax treaties in order to maintain one of Ireland's key advantages.

Question 4:

How important is Ireland's tax regime to aircraft lessors?

The answers to this question are presented in Table 4 below by response, number of responses and percentage of total responses with Figure 7 presenting the information graphically in a pie-chart as follows:

Response	#	%
Tax treaties are critical	11	58%
Corporation tax not as important	4	21%
Personal taxation is damaging	4	21%

Table 4: Question 4 responses

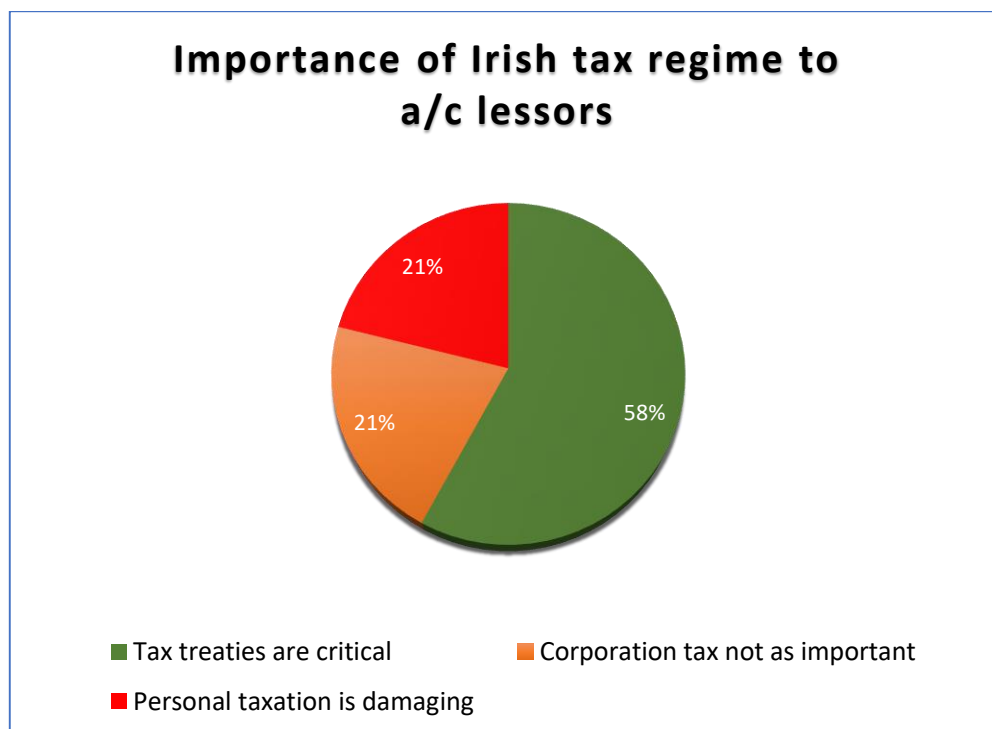


Figure 7: Question 4 responses breakdown

In this question, the existence of an extensive tax treaty network is cited once again as being a key factor in Ireland's success at developing into a status in aircraft leasing. It was noted by some interviewees that Ireland's tax treaties with foreign jurisdictions had been built over decades with language included that was of key benefit to aircraft lessors. In the early days, counterparties were typically of the opinion that the majority of trade would be from their country to Ireland instead of vice versa. This was a fortunate development for Ireland and aircraft lessors based here and this format of tax treaty became the standard as Ireland continued to build its tax treaty network. Ireland's 12.5% rate of corporation tax on trading profits is also cited as a key factor in Ireland's successful development of an indigenous aircraft leasing sector, but a less important one than the tax treaty network. The reason given by the interviewees for this assertion is that aircraft leasing companies could avail of similar or much lower rates of corporation tax in other countries. For example, corporation tax in Dubai is limited only to oil companies and banks, all other types of company in Dubai are not subject to corporation tax (UAE, 2019). The difference noted by the interviewees is that Ireland offers a highly competitive rate of corporation tax plus the extensive tax treaty network. Personal taxation in Ireland was viewed by some interviewees as being damaging to the aircraft leasing industry and to Ireland's economy as a whole when coupled with a high cost of living, expensive housing, etc. This was noted as being particularly relevant for foreign nationals moving to Ireland from jurisdictions with lower rates of personal taxation. This will be discussed in more detail as part of Question 17.

Question 5:

What are the key risks facing the global leasing sector?

The answers to this question are presented in Table 5 below by response, number of responses and percentage of total responses with Figure 8 presenting the information graphically in a bar-chart as follows:

Response	#	%
Aircraft overproduction	3	17%
Commoditisation of the product	1	6%
Yields falling	2	11%
Contradictory OEM business models	1	6%
BEPS	1	6%
ATAD	1	6%
Airline consolidation	2	11%
Talent pool	1	6%
Access to capital	3	17%
Climate change movement	1	6%
Economic downturn	1	6%
Unsecured debt	1	6%

Table 5: Question 5 responses

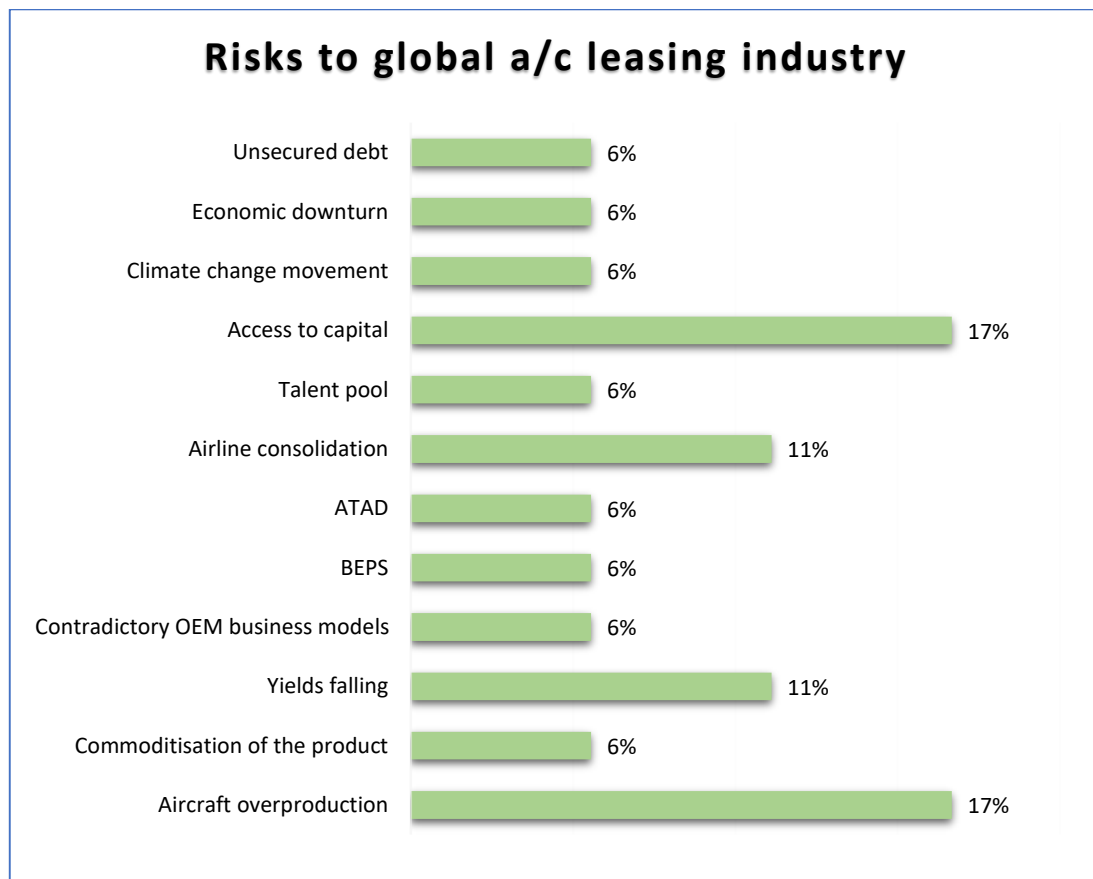


Figure 8: Question 5 responses breakdown

This question generated the highest number of different categories of response from the interviewees, demonstrating the perceived range of risks to the global aircraft leasing industry as follows:

Unsecured debt: As the larger lessors are pushing to achieve and maintain an ‘investment grade’ status from the main ratings agencies, one of the criteria for achieving this is to increase the ratio of unsecured versus secured debt. Traditional secured funding tends to encumber much of a lessor’s aircraft. Ratings are in turn constrained by the level of secured funding and by less robust alternate liquidity than market peers. For example, the ratings agency Moody’s recommends that an aircraft leasing company should diversify its funding to reduce its ratio of secured debt to tangible assets to less than 30% in order to achieve a rating upgrade (Moody’s, 2018). It is felt that because unsecured debt is not backed by an asset, interest rates may be higher than secured debt, particularly if there is no guarantor in place.

Economic downturn: Aircraft leasing is highly correlated to the global airline industry which is turn is correlated to global GDP performance and therefore it is to be expected that “if and when a downturn comes, we will follow the general economic cycle because fundamentally our sector is driven by demand for travel – demand is strong when GDP performance is strong, and it weakens when GDP performance weakens.” (Kelly, 2019)

Climate change movement: This was noted by one interviewee as a potential threat in future as a younger generation comes of age with more concern for environmental issues and choose to avoid air travel.

Access to capital: Some concern was expressed about the potential for lenders to move away from aviation financing if there are higher returns available elsewhere. Aircraft leasing is a capital-intensive industry with huge sums of money often committed for OEM aircraft orders so access to capital at affordable rates is critical.

Talent pool: This will be discussed in greater detail in Question 7.

Airline consolidation: This was highlighted as a threat to the aircraft leasing industry because of the ability of consolidated airline groups to negotiate better prices for new aircraft from the OEM’s combined with their equal or better access to capital adding complexity to the buy versus lease decision-making process for airlines.

ATAD: In January 2016 the EU Commission presented its proposal for an Anti-Tax Avoidance Directive (ATAD) as part of the Anti-Tax Avoidance Package. In June 2016 the Council adopted the Directive (EU) 2016/1164 laying down rules against tax avoidance practices that directly affect the functioning of the internal market. In order

to provide for a comprehensive framework of anti-abuse measures the Commission presented a proposal to complement the existing rule on hybrid mismatches. The rule on hybrid mismatches aims to prevent companies from exploiting national mismatches to avoid taxation. The ATAD contains 5 legally-binding anti-abuse measures, which all Member States should apply against common forms of aggressive tax planning from 1st January 2019. It aims to create a minimum level of protection against corporate tax avoidance throughout the EU, while ensuring a fairer and more stable environment for businesses. The anti-avoidance measures in the ATAD other than the rule on hybrid mismatches, are:

- 1. Controlled foreign company (CFC) rule:** to deter profit shifting to a low/no tax country;
- 2. Switchover rule:** to prevent double non-taxation of certain income;
- 3. Exit taxation:** to prevent companies from avoiding tax when re-locating assets;
- 4. Interest limitation:** to discourage artificial debt arrangements designed to minimise taxes;
- 5. General anti-abuse rule:** to counteract aggressive tax planning when other rules don't apply (EU Commission, 2019).

This topic was highlighted as a potential threat to the industry in Ireland due to the concern that aircraft leasing companies may be disproportionately impacted by the new measures when compared with banks or other financial institutions, amongst other issues. This, and all issues been highlighted in a submission by ALI to the Department of Finance's consultation process (ALI, 2019).

BEPS: This will be discussed in more detail as part of Question 14.

Contradictory OEM business models: This was raised as a concern because of the different asset-life figures used by different Airframe and Engine OEM's. For example, if the Airframe OEM sets an asset-life of 20 years for an Airframe type and an Engine OEM sets an asset-life of 30 years for the associated engine type, it complicates the overall asset valuation process for airlines and leasing companies.

Yields falling: The fall in yields is largely attributable to the current global low interest

rate environment driving a lot of funding into aviation assets as investors search for yield. If interest rates were to increase enough, it may lead to investors looking elsewhere (O'Mara, 2019).

Commoditisation of the product: This concern is raised in relation to the increased competition within the aircraft leasing sector brought about by the number of new market entrants leading to a commoditised market with price-based competition for driving up asset prices.

Aircraft overproduction: This relates to the huge increases in rates of production by the two main OEM's in recent years with interviewees questioning the viability of huge aircraft orders being placed by small airlines with long lead-times. Much of the demand for new aircraft was driven by high oil prices and buoyant emerging market economies driving airlines to order newer, more fuel-efficient aircraft to drive growth and minimise costs. The subsequent drop in oil prices coupled struggling emerging markets and a buoyant aircraft ABS market has made older aircraft more desirable. Any lessors which expand operations and order new aircraft based on such a temporary spike in demand may end up with expensive aircraft off-lease if/when a market downturn arrives.

Question 6:

What are the main risks to Ireland's status as the global hub of aircraft leasing?

The answers to this question are presented in Table 6 below by response, number of responses and percentage of total responses with Figure 9 presenting the information graphically in a pie-chart as follows:

Response	#	%
Talent pool	8	38%
Employment costs	4	19%
Complacency by Govt & industry	2	10%
Competitor jurisdictions	4	19%
EU corporate tax harmonisation	3	14%

Table 6: Question 6 responses

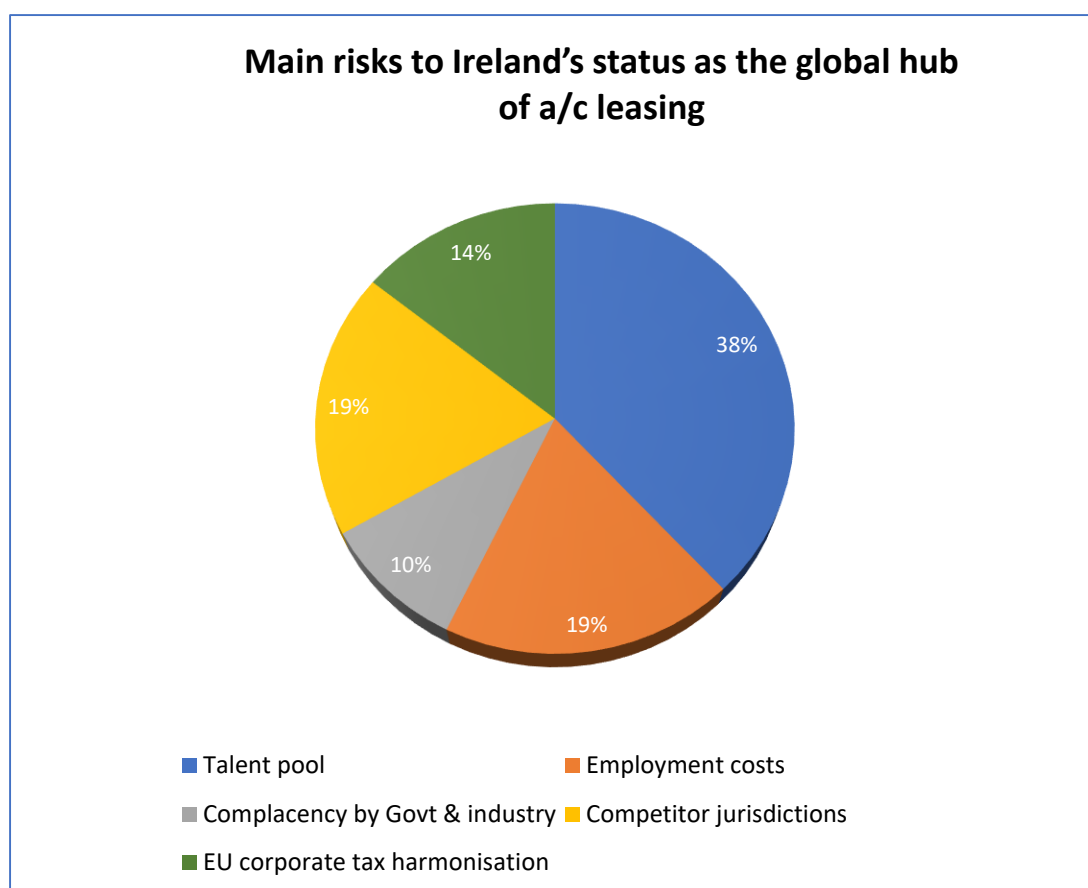


Figure 9: Question 6 responses breakdown

In addition to the global risks to the aircraft leasing industry as a whole, the author wanted to investigate whether there were any additional risks specific to the industry in Ireland which may have the potential to affect Ireland's position as a leading global hub in the sector. The interviewees identified 5 specific areas of concern which are worthy of additional research and discussion here, as follows:

Talent pool: This will be discussed in greater detail in Question 7.

Employment costs: This is a consequence of the growth in the industry noted in the previous point. In any industry, and in particular for a highly specialised, global industry such as aviation and aircraft leasing, a shortage of skilled, experienced talent will drive up employment costs (Hickie et al, 2019).

Complacency by Govt & industry: This was highlighted in relation to the threat posed by foreign jurisdictions in particular. Interviewees felt that a lack of joined-up thinking and common approach by the Irish government and its various departments has the potential to harm the sector.

Competitor jurisdictions: Several interviewees noted that foreign governments are presenting a very professional, organised product offering in their bid to attract aircraft lessors to their countries. This was seen as being in contrast to a fragmented product offering from the Irish authorities which needs to be addressed.

EU corporate tax harmonisation: This will be discussed in greater detail in Question 13.

Question 7:

How critical do you think recruitment and retention is for the aircraft leasing sector in particular?

The answers to this question are presented in Table 7 below by response, number of responses and percentage of total responses with Figure 10 presenting the information graphically in a pie-chart as follows:

Response	#	%
Very - highly specialised industry	5	36%
Very - small talent pool	3	21%
Very - new market entrants taking people	2	14%
Very - takes years to build experience	2	14%
Very - employment costs increasing	2	14%

Table 7: Question 7 responses

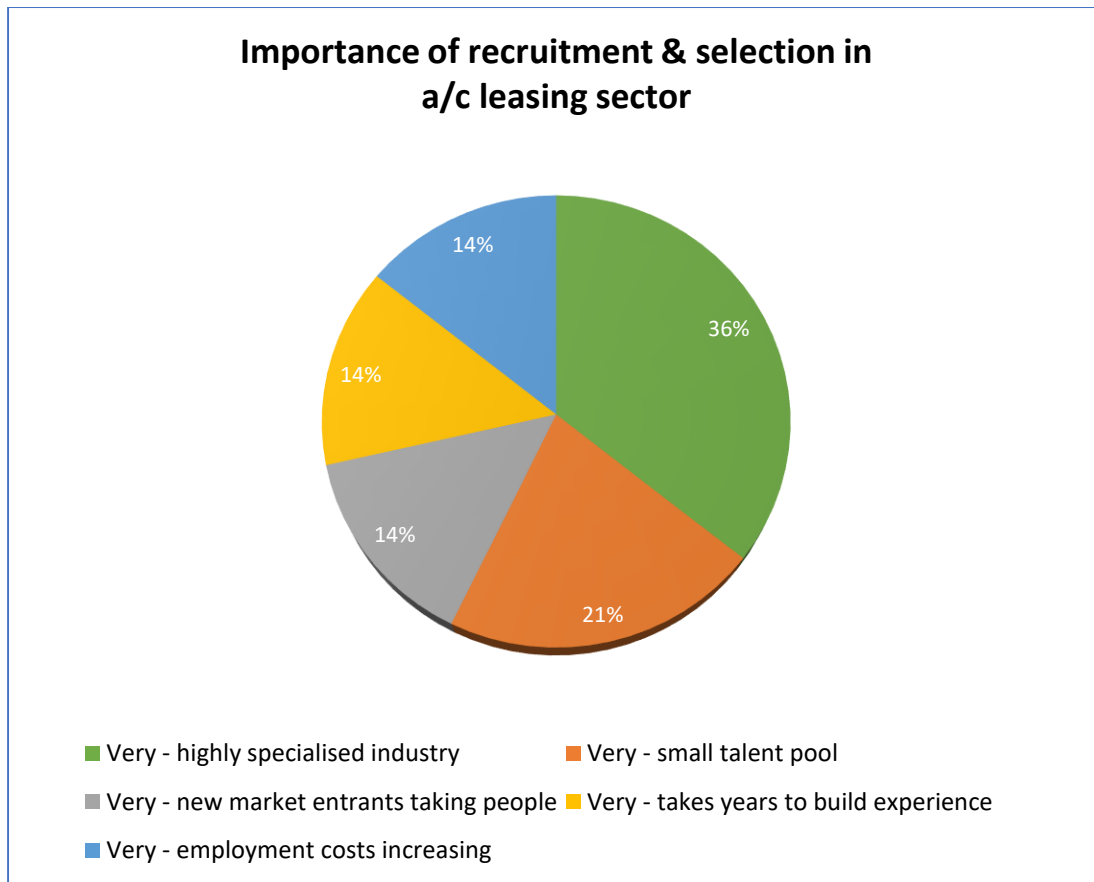


Figure 10: Question 7 responses breakdown

The majority of interviewees expressed concern that growth in the industry and the number of new market entrants is leading to a situation where there is a shortage of qualified, experienced people. It was noted that even with good qualifications, it can take years for an individual to gain appropriate industry-specific experience. This shortage of talent has the potential to drive up employment costs as discussed in the response to Question 6 due to individuals being in higher demand and able to command higher salaries and better employment packages.

Question 8:

Are new market entrants disrupting the sector? (Issues affecting profitability, competition for assets, lease rate factors, etc)

The answers to this question are presented in Table 8 below by response, number of responses and percentage of total responses with Figure 11 presenting the information graphically in a bar-chart as follows:

Response	#	%
Yes - scale industry	5	18%
Yes - inexperienced staff	3	11%
Yes - damaging deal quality	5	18%
Yes - pushing up employment costs	2	7%
Yes - overpaying for assets	3	11%
Yes - doing higher risk deals	4	14%
Yes - lease rate factors falling	6	21%

Table 8: Question 8 responses

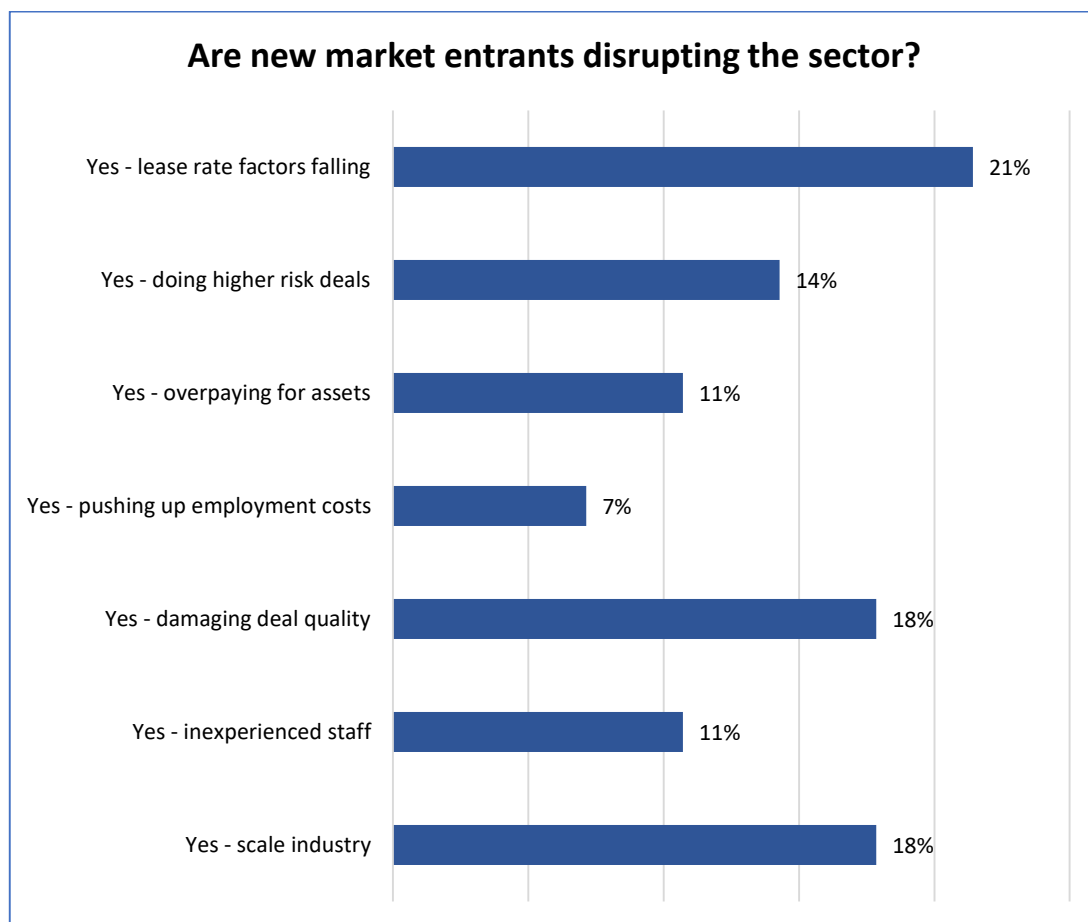


Figure 11: Question 8 responses breakdown

The consensus amongst the interviewees was that new market entrants are indeed disrupting the aircraft leasing sector in a number of ways. Because aircraft leasing is a scale-industry, there is increased competition for assets which inevitably results in higher asset prices. There is also the potential for riskier deals to be made by less experienced staff in the pursuit for growth which in turn contributes to an increase in

business risk, a critical element in the decision-making process for the majority of established aircraft lessors. The effect on the talent pool and associated employment costs have already been discussed in Question 8. New market entrants are also seen as having a disruptive affect on lease rate factors and therefore on profitability which is affecting the whole industry. Lease rate factor (LRF) is a key metric used in aircraft leasing to measure the value for an aircraft lease along with the other key metric of Internal Rate of Return (IRR). LRF is calculated by dividing the monthly lease rental amount by the day one aircraft value. New market entrants are accused of driving down LRF's, particularly in the sale-leaseback (SLB) market in recent years as they try to achieve scale by building market share at any cost. This strategy of buying deals with LRF's reported to be lower than 0.6% carries the inherent risk of losses during an industry downturn (O'Keefe, 2018) (Allen, 2017) (KPMG, 2018).

Question 9:

What are foreign Governments doing to attract aircraft lessors to their jurisdictions?

The answers to this question are presented in Table 9 below by response, number of responses and percentage of total responses with Figure 12 presenting the information graphically in a pie-chart as follows:

Response	#	%
Corporate tax incentives	6	30%
Highlighting regional advantages	3	15%
Building up tax treaty networks	6	30%
Luring foreign nationals' home	2	10%
Presenting a quality product	3	15%

Table 9: Question 9 responses

What are foreign governments doing to attract a/c lessors to their jurisdiction?

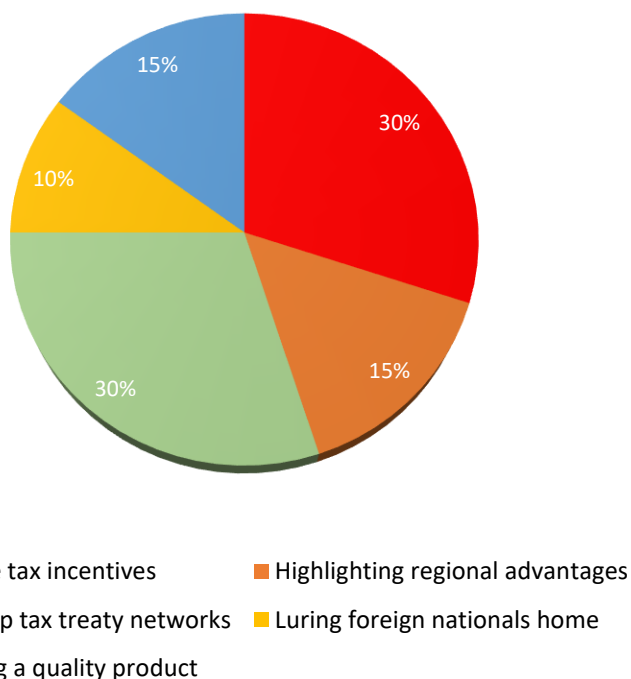


Figure 12: Question 9 responses breakdown

Countries such as Singapore, Hong Kong, Dubai, India and China make no secret of their desire to lure aircraft leasing companies from Ireland and elsewhere to their jurisdictions and have put various strategic initiatives in place for this purpose. They offer a range of financial and infrastructural incentives including reduced or zero % corporate tax rates, the advantages of being based in their region which is closer to the main Asian growth market, a cohesive and quality product offering and the prospect of returning home for foreign nationals currently based in Ireland. They are also working to build up their tax treaty networks to allow them to compete with Ireland in this crucial area. Hong Kong's attractiveness as a location for doing business is likely to have suffered significantly following the recent attempt by authorities there to introduce a law allowing for the extradition of Hong Kong citizens to mainland China, which although dropped for now following a series of protests, has resulted in ongoing protests and a violent police response (Law, 2019).

Question 10:

What effect do you think the ABS market is having on the traditional structure of aircraft lessors' fleets (managed vs. owned fleet) and their overall fleet strategy?

The answers to this question are presented in Table 10 below by response, number of responses and percentage of total responses with Figure 13 presenting the information graphically in a pie-chart as follows:

Response	#	%
None - can have a mixed fleet	5	24%
Efficient way to trade out of older a/c	6	29%
Keeps fleet age down	4	19%
Maintaining mid-life a/c values	6	29%

Table 10: Question 10 responses

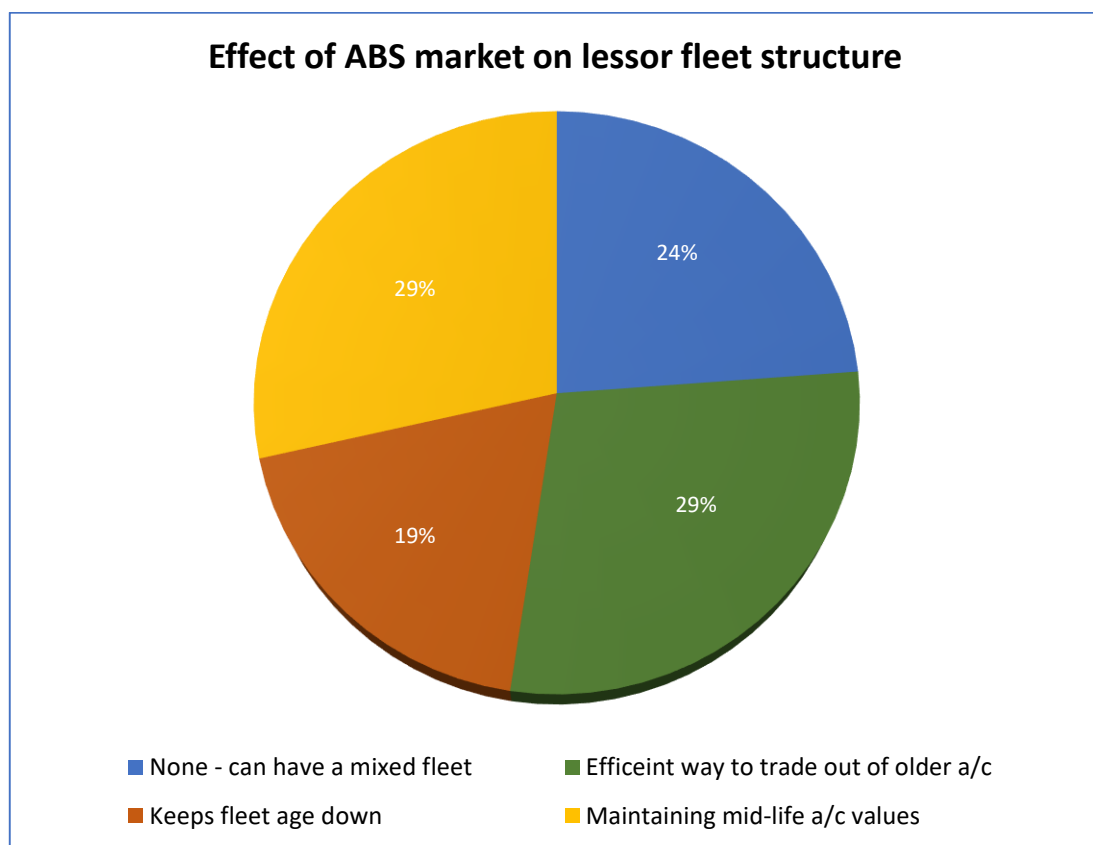


Figure 13: Question 10 responses breakdown

The highly popular and successful aircraft ABS market is generally viewed as a positive development for the industry by the interviewees. Any changes to lessor's fleet

structures by adding a managed fleet component alongside the owned fleet are not seen as problematic and have actually added an additional ancillary income stream in the form of aircraft portfolio management fees. ABS vehicles have helped to maintain and boost mid-life aircraft values and offer an efficient way for lessors to trade older aircraft in portfolio offerings. This allows the aircraft lessors to keep their owned fleet age down while maintaining a large overall owned and managed fleet.

Question 11:

What impact is the big lessor's quest to achieve 'Investment Grade' status having on the industry?

The answers to this question are presented in Table 11 below by response, number of responses and percentage of total responses with Figure 14 presenting the information graphically in a bar-chart as follows:

Response	#	%
Shift to unsecured debt	9	35%
Risky - dealing in billions vs millions	1	4%
Increased rating agency influence	2	8%
Driving up scale threshold	2	8%
Increased flexibility	4	15%
Lower cost of capital	8	31%

Table 11: Question 11 responses

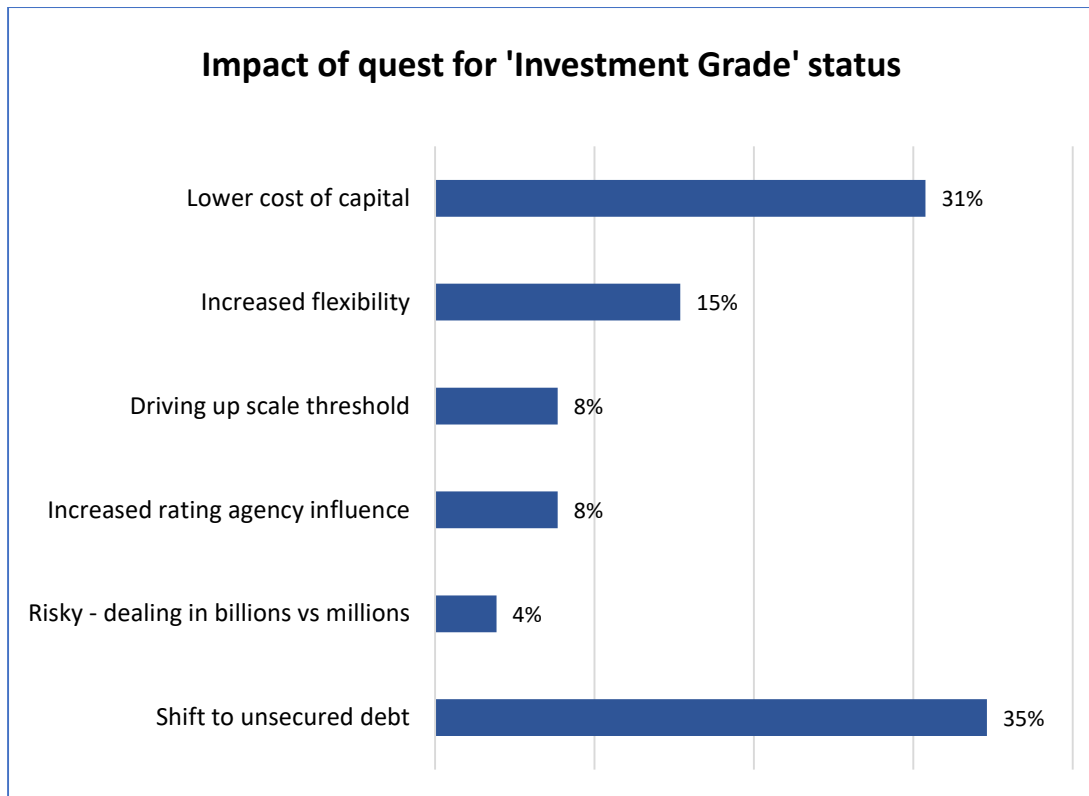


Figure 14: Question 11 responses breakdown

The recent focus by the larger aircraft lessors on achieving an 'investment grade' rating from the main global ratings agencies has brought about a change in the type of debt financing from secured to asset-backed, secured, and unsecured in line with criteria specified in the rating methodologies. In a competitive market with decreasing lease rate factors and profit margins, the larger lessors can maintain their advantage over smaller players by achieving a lower cost of capital. It has been rumoured that the credit ratings agencies deem fleets of under 200 aircraft ineligible for investment grade status due to poor diversification effect and insufficient scale (Cebotaru, 2018). This shift in debt financing is seen as increasing risk because the sums being borrowed are often in the billions instead of millions and there is also an associated increase in interest rate risk although this may be hedged against. Another issue raised here was the increasing influence of the ratings agencies in the aircraft leasing industry and how it is funded, with several interviewees noting the less than complementary behaviour of these same entities in the lead-up to the 2008 financial crisis.

Question 12:

What impact does IFRS 16 (International Financial Reporting Standards), effective from Jan 1st, 2019 have on airlines and aircraft lessors?

The answers to this question are presented in Table 12 below by response, number of responses and percentage of total responses with Figure 15 presenting the information graphically in a pie-chart as follows:

Response	#	%
Bigger impact on airlines	7	58%
Nonsense - duplication of assets	1	8%
Impacts airline lease vs buy decision	4	33%

Table 12: Question 12 responses

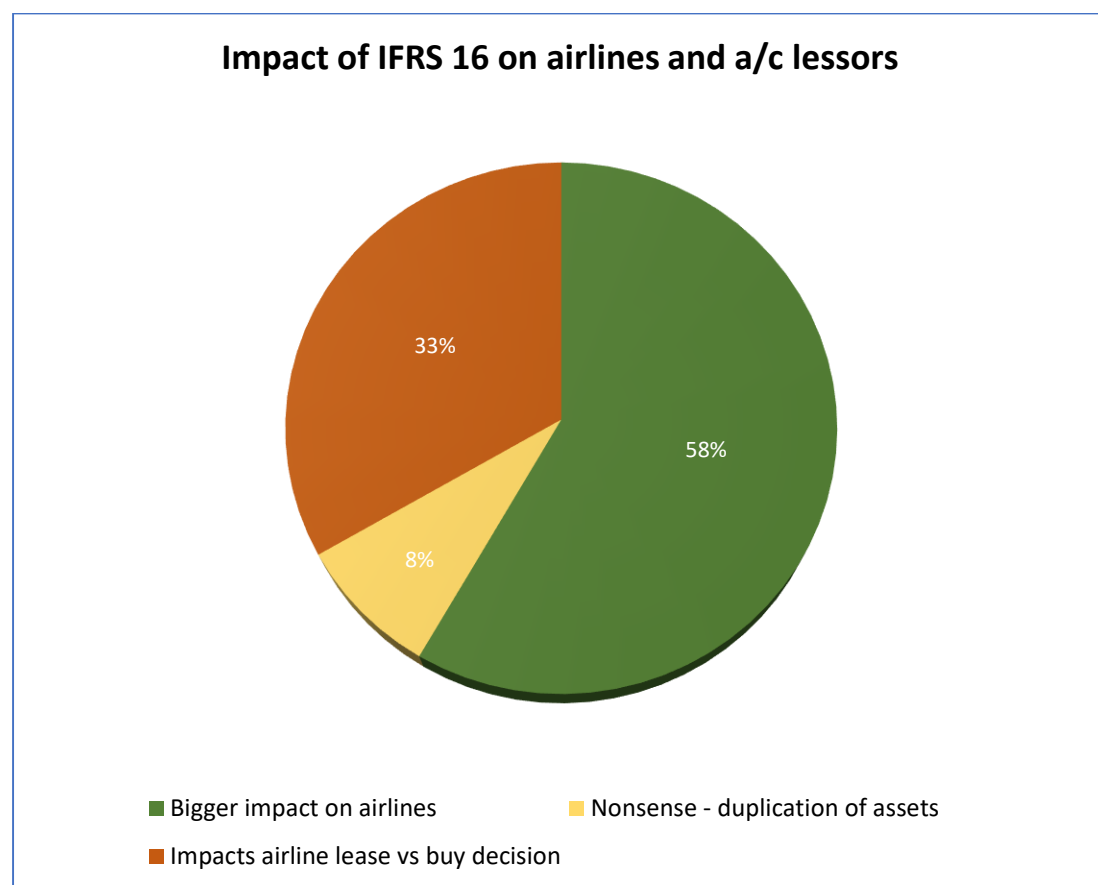


Figure 15: Question 12 responses breakdown

As Deloitte Insights (2017) explains, “IFRS 16 is a new leasing standard introduced by the International Accounting Standards Board (IASB) to replace the IAS 17 accounting

treatment of leases. Historically, leases have been categorised as either 'Finance Leases' which are reported on Balance Sheet or 'Operating Leases' which are disclosed only in the Income Statement and Notes to the Financial Statements. IAS 17 focused on lease classifications as follows:

A) Finance Lease - where a lease is economically similar to purchasing the underlying asset and reporting the asset (& liability) on balance sheet;

B) Operating Lease - where a lease gives rise to an:

- Asset: "A resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity"
- Liability: "A present obligation of the entity arising from past events, the settlement of which is expected to result in an outflow from the entity of resources embodying economic benefits."

This, somewhat arbitrary distinction, made it difficult for investors to compare companies. There was also criticism from investors that the reported balance sheets provided a misleading picture about the amount of leverage and leased assets used. This meant that investors (and others) had to estimate the effects of a company's off balance sheet lease obligations, which in practice often led to overestimating the liabilities arising from those obligations.

IFRS 16 defines a lease as a contract that conveys to the customer ("lessee") the right to use an asset for a period of time in exchange for consideration. Fulfilment of the contract depends on the use of an identified asset and control of the use of the asset during the lease period. IFRS 16 removes the distinction between finance and operating leases for lessees. Enhanced guidance is introduced on identifying whether a contract contains a lease. A completely new lease accounting model for lessees that requires lessees to recognise all leases on balance sheet, except for short-term leases and leases of low-value assets is introduced. Lessor accounting will not change significantly."

While the majority of interviewees noted that IFRS 16 has a far greater impact on airlines than aircraft lessors, it was also noted that any negative impact on an airlines balance sheet and P&L may subsequently influence an airlines decision-making

process when it comes to assessing whether to buy or lease additional aircraft for their operation. It was also noted that this new lease standard is largely unnecessary and may have unwanted side-effects on the market with a potentially distorting effect on components in the airlines P&L accounts and cashflow statements. Many airlines are now pushing for shorter aircraft leases, from 12 to 8 or 6 years which would have a positive impact on their balance sheet under IFRS 16 (KPMG, 2019).

Question 13:

Do you think EU policy in regard to corporation tax could affect the industry?

The answers to this question are presented in Table 13 below by response, number of responses and percentage of total responses with Figure 16 presenting the information graphically in a pie-chart as follows:

Response	#	%
Yes - but unlikely to happen soon	7	58%
No - less important than tax treaties	5	42%

Table 13: Question 13 responses

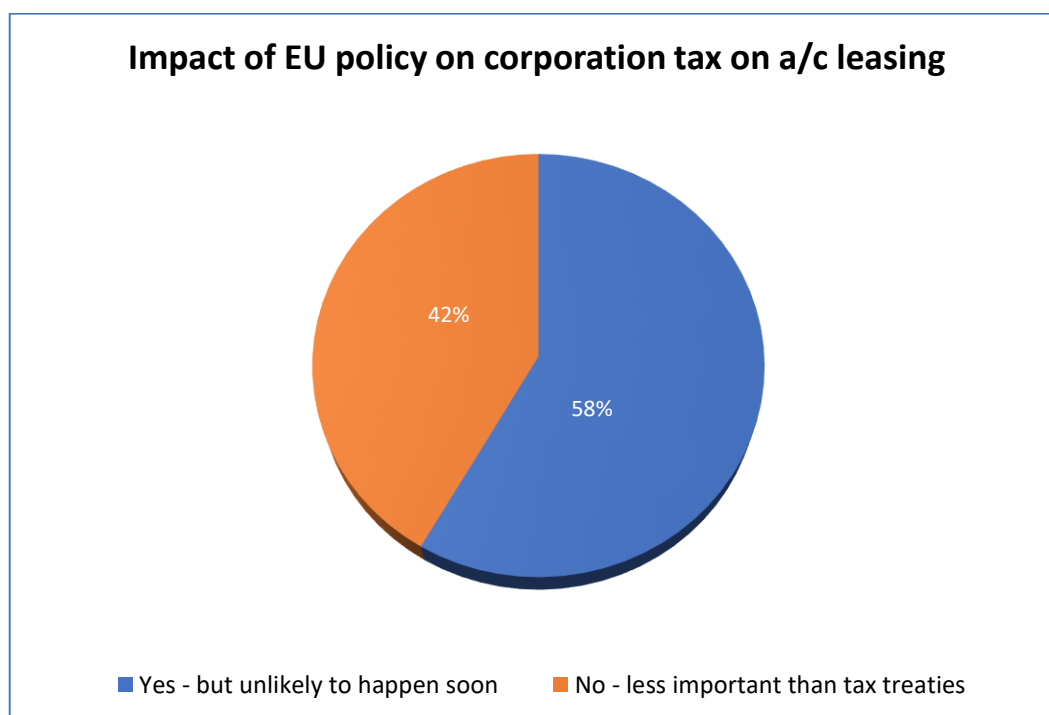


Figure 16: Question 13 responses breakdown

This was highlighted by several interviewees as a potential threat in relation to the recent debate around competing corporate tax rates across the EU and the EU case against Apple receiving unfair tax incentives from the Irish government. This has led to Ireland being accused by some of being a corporate tax haven used by MNC's to shelter their profits (Tørsløv et al., 2018). As Álvarez-Martínez et al., (2019) found, "Corporate tax rates in developed economies are subject to intense public debate. Competition for mobile capital, including in particular foreign direct investment (FDI), has prompted a number of countries to lower or consider lowering their corporate tax rates to attract foreign investors, especially in the aftermath of the global financial crisis. Corporate income tax (CIT) rates have experienced substantial reductions since 2000, going from an OECD-average value of 32.5% to 24.7% in 2017. EU countries have been particularly active in this process, with CIT rates falling on average from 32.5% in 2000 to 22.9% in 2017." This fall in EU corporate tax rates is depicted in Figure 17 below. The interviewees expressed concern that this focus on corporate tax rates by the EU could have the potential to result in Ireland being forced to raise its corporate tax rate above the current 12.5%.

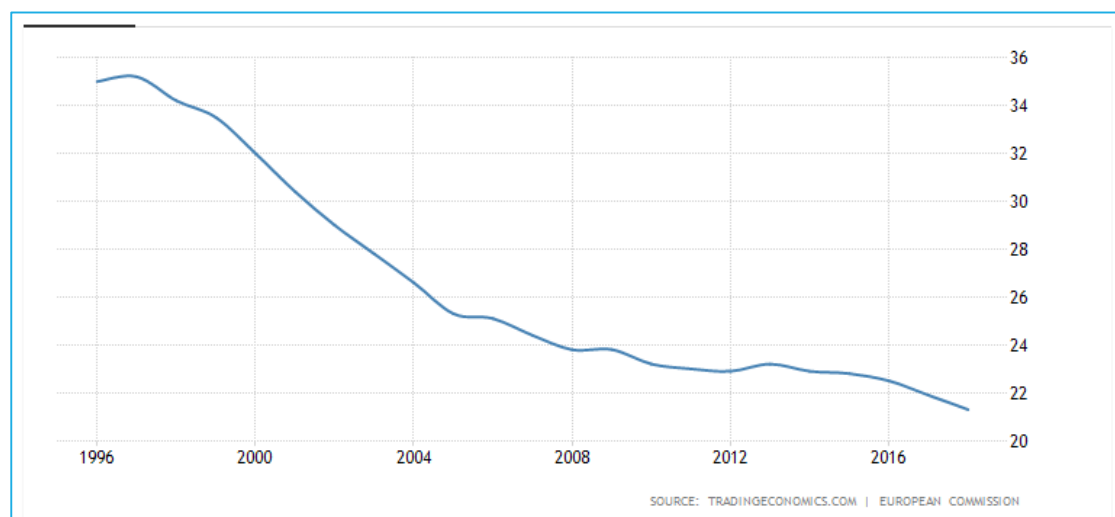


Figure 17: EU corporate tax rate 1996-2018 (Trading Economics, 2019)

Question 14:

What is the potential impact of 'Base erosion and profit shifting' (BEPS) regulations?

The answers to this question are presented in Table 14 below by response, number of

responses and percentage of total responses with Figure 18 presenting the information graphically in a bar-chart as follows:

Response	#	%
Presents an opportunity for Ireland	6	60%
Aims to prevent tax treaty shopping	4	40%

Table 14: Question 14 responses

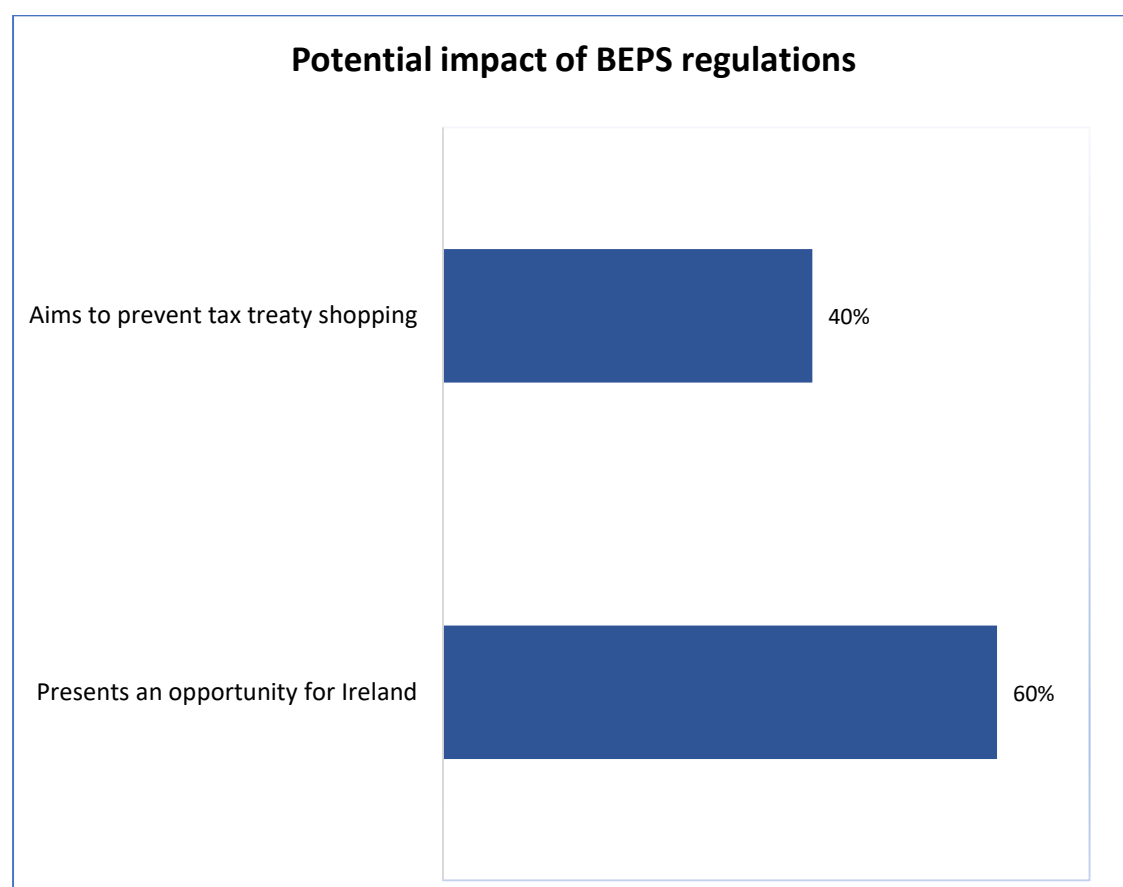


Figure 18: Question 14 responses breakdown

Approximately 70 countries, including the Republic of Ireland are party to a new international tax convention which is being launched by the OECD. As correctly identified by the interviewees, this policy aims to prevent MNC's from 'treaty-shopping' for the jurisdiction which is most favourable to their tax liabilities. BEPS is intended to guarantee that corporate profits are taxed where the substance of that business is located. Ireland's 12.5% corporate tax rate already operates on this basis,

with corporate tax policy discouraging so-called ‘brass-plate’ operations. Companies paying corporate tax in Ireland must maintain an operation with highly qualified and experienced people based in the country to manage the day-to-day business activities. This is likely to lead to more aircraft lessors establishing operations in Ireland than leaving the jurisdiction (Fleming, 2019).

Question 15:

What is the effect of a strong US Dollar on airlines in emerging market economies?

The answers to this question are presented in Table 15 below by response, number of responses and percentage of total responses with Figure 19 presenting the information graphically in a pie-chart as follows:

Response	#	%
Higher \$ = higher costs	8	31%
Increased FX risk	8	31%
Affects airline growth plans	6	23%
Affects consumer behaviour	4	15%

Table 15: Question 15 responses

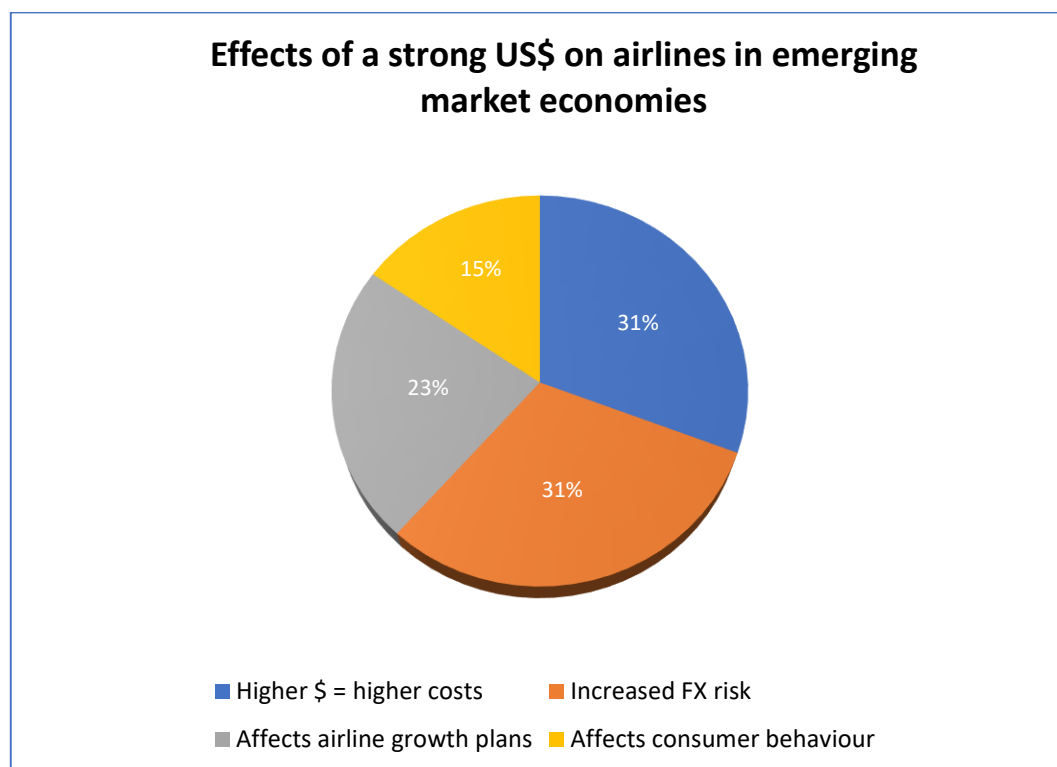


Figure 19: Question 15 responses breakdown

The interviewees highlighted the major impacts of a strong US Dollar and associated currency fluctuations on airlines from emerging market economies. The international nature of the aviation industry means that airlines are very often exposed to currency fluctuation risk in their operations. The majority of international operators will have costs and revenues in a number of different currencies. Having to convert some or all of these cashflows to a different currency forms the basis of what is known as foreign exchange (FX) risk. Because the majority of aircraft lessors do business with airlines in emerging market economies where FX risk may be a significant factor, they in turn may suffer the consequences of this FX risk. Approximately 40% of an airlines total operating costs may be US Dollar denominated, including fuel, ground handling charges, aircraft leasing/ownership and airframe/engine maintenance costs so the airlines FX risk usually relates to the exchange rate between the US Dollar and the airlines local currency.

The relative scope of this FX risk varies from airline to airline depending on the size and nature of their operation and whether their corporate strategy includes management of the risks associated with FX fluctuations via the various financial hedging instruments such as fuel hedging and interest rate swaps. Interest rate swaps will be discussed in more detail in Question 16. Figure 20 below highlights the potential impacts of FX fluctuation on an airlines business. These include: long-term supply or capacity decisions which relate to the airlines route network planning and medium to long-term aircraft investment choices; consumer demand for flights based on the value of the local currency versus the dollar affecting traffic with highly leisure-driven markets tending to be more sensitive to price shifts than more business-oriented routes; and financial accounting whereby exchange rate movements may impact an airlines profitability and balance sheet valuations (IATA, 2015).

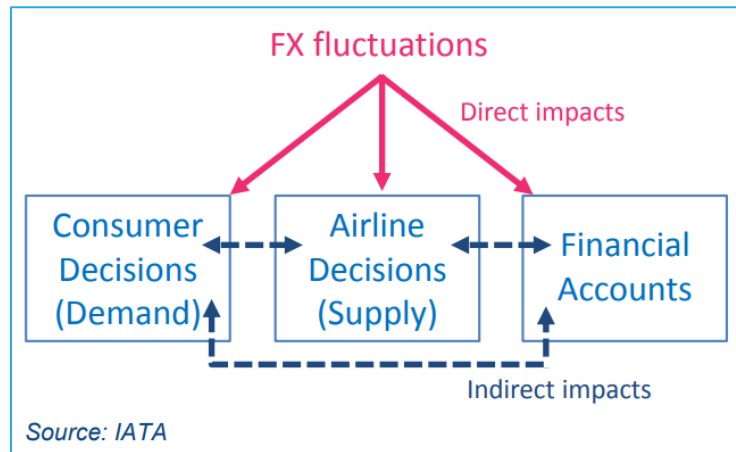


Figure 20: Impacts of FX fluctuations on airlines (IATA, 2015).

Figure 21 highlights the impact of exchange rate fluctuations on operating financial performance under the three scenarios of natural hedge (where the level of foreign currency revenues exactly matches foreign currency costs); foreign currency deficit (where foreign currency revenues are lower than foreign currency costs); and foreign currency surplus (where foreign currency revenues exceed foreign currency costs) (IATA, 2015). The aircraft lessors themselves are less exposed than their airlines clients because both costs (in the form of aircraft purchases) and revenues (in the form of lease rental payments and maintenance reserves) are typically in US Dollars.

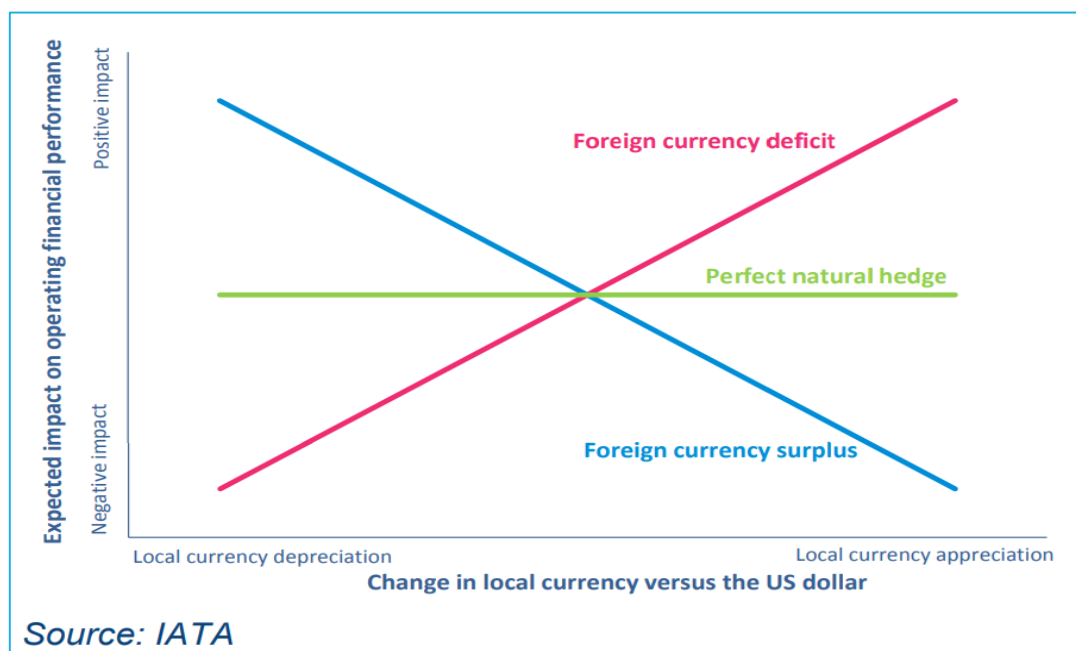


Figure 21: FX mismatch and operating financial performance (IATA, 2015)

Question 16:

What effect does interest rate volatility have on aircraft lessors?

The answers to this question are presented in Table 16 below by response, number of responses and percentage of total responses with Figure 22 presenting the information graphically in a pie-chart as follows:

Response	#	%
New aircraft less attractive	4	22%
Correlation with lease rentals	5	28%
Increases cost of capital	9	50%

Table 16: Question 16 responses

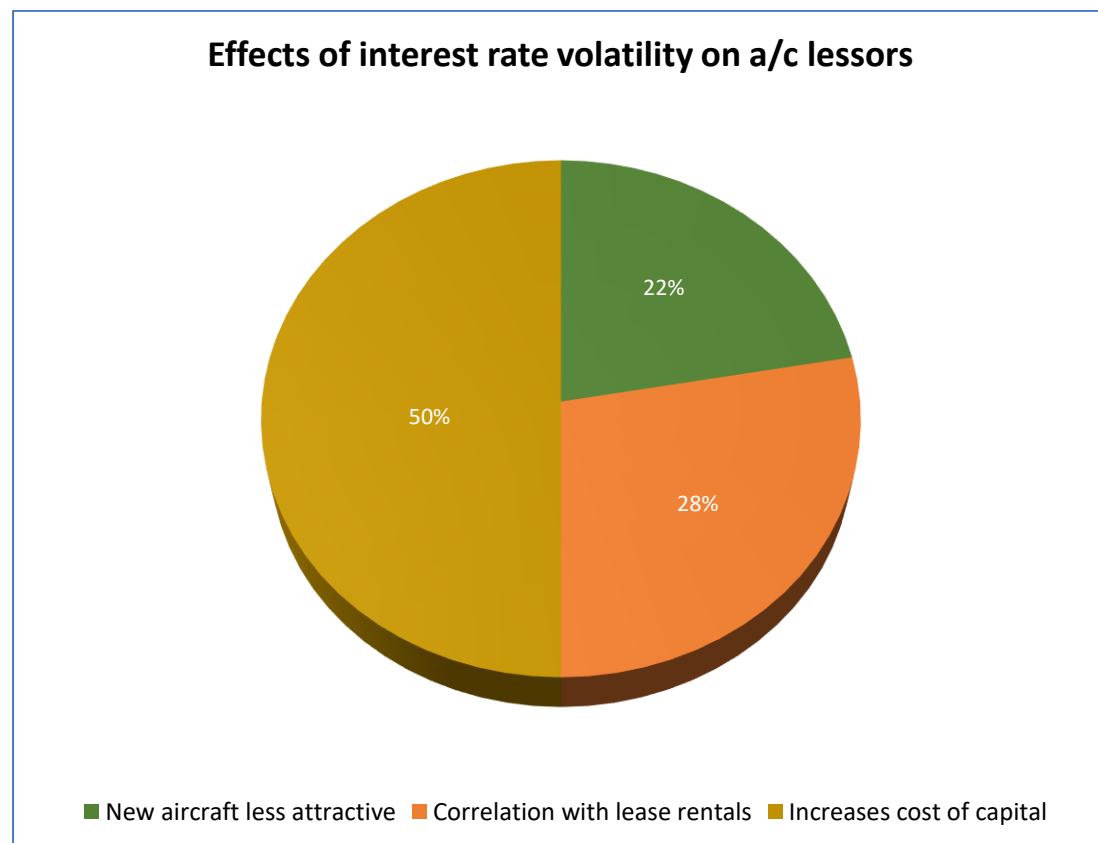


Figure 22: Question 16 responses breakdown

The majority sentiment from the interviewees on this question was that fluctuating interest rates have the greatest effect on an aircraft lessor's cost of capital. Aircraft leasing is a highly leveraged business and even small increases in interest rates could have a major impact on loan repayments for aircraft purchases and business

operations. Higher interest rates may also make it more difficult to raise initial capital for investment programmes which makes a speculative new aircraft pipeline order less attractive. This is where the larger investment grade lessors have a key advantage over smaller players in the market. many lessors incorporate mechanisms for interest rate adjustment in their leases which increase lease rates as interest rates rise. It remains to be seen how an increase in interest rates affects the new investors in the leasing sector in recent years if better returns materialise in other markets (Dutton, 2018).

Question 17:

What are the effects of Irish personal taxation on FDI and the aircraft leasing sector?

The answers to this question are presented in Table 17 below by response, number of responses and percentage of total responses with Figure 23 presenting the information graphically in a pie-chart as follows:

Response	#	%
Small factor vs corporation tax	1	6%
Personal tax way too high	11	69%
SARP extension required	4	25%

Table 17: Question 17 responses

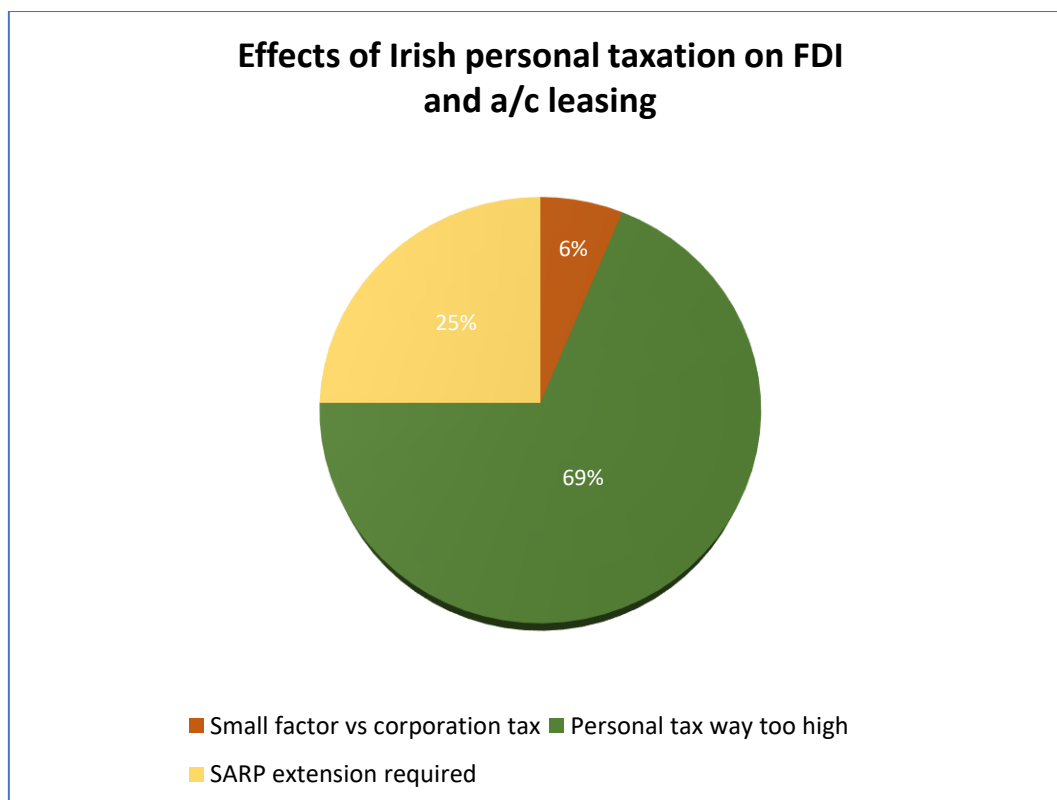


Figure 23: Question 17 responses breakdown

While it was noted that personal taxation in Ireland is not a major factor in comparison with the benefits of the 12.5% rate of corporate tax, the majority of interviewees were of the opinion that Ireland's personal income tax is too high, particularly when considered alongside the relatively high cost of living with house prices and availability in the Dublin area being a major concern. This is an area where foreign jurisdictions such as Dubai with no income taxes have an advantage over Ireland. To cater for and to encourage the relocation/assignment of key personnel to Ireland from other jurisdictions by their Ireland based employers, the Irish government launched a tax relief scheme in 2012 called the Special Assignee Relief Programme (SARP). Those who qualify for the SARP scheme benefit from 30% of taxable employment income over €75,000 being disregarded for income tax purposes. Finance Act 2016 extended the scheme to employees arriving to work in Ireland up to the end of 2020. This tax relief is available for up to 5 years (Revenue Irish Tax and Customs, 2019). Several interviewees felt that the SARP scheme needs to be extended beyond 2020 and that it should be available for longer than the current 5-year period.

Chapter 5: Discussion:

The aviation industry and aircraft leasing continue to benefit from a decade-long bull run. Airlines have benefited from access to cheap finance which brought about fierce competition in the leasing sector, forcing down lease rate factors. Geopolitical factors including the US-China trade dispute, Brexit, Middle East tensions and public unrest in Hong Kong are causing uncertainty in global markets. Interest rates remain low but any increases leading to a higher US Dollar exchange rate will put additional pressure on airlines whose revenues are in local currencies, affecting profitability.

New market entrants in the leasing sector have also benefitted from cheap finance and airline demand for additional aircraft to meet passenger growth. Investors entered the leasing market in search of yields currently unavailable in other sectors. At the end of 2018, the global leased aircraft fleet had increased by 629 aircraft to a total of 8,109 aircraft with 100 new operating lessors in the market. Figure 24 lists the Top 30 global aircraft lessors including total aircraft fleets, new aircraft order pipelines, estimated fleet value and current ranking:

TOP 30 LEASING COMPANIES (RANKED BY NUMBER OF AIRCRAFT)				
Manager	Total Portfolio	On Order	Est Portfolio Value (\$mn)	Current Rank
GECAS	1,229	369	23,602	1
AerCap	1,056	362	32,975	2
Avolon	521	400	18,725	3
BBAM	498	0	20,499	4
Nordic Aviation Capital	471	48	6,285	5
SMBC Aviation Capital	422	196	15,723	6
ICBC Leasing	377	122	15,448	7
DAE Capital	352	1	10,257	8
Air Lease Corporation	336	382	14,559	9
BOC Aviation	331	171	14,051	10
Aviation Capital Group	310	171	8,769	11
Aircastle	246	25	5,533	12
ORIX Aviation	236	0	6,922	13
Unconfirmed Operating Lessor	233	0	6,049	14
Apollo Aviation Group	229	0	3,225	15
CDB Aviation Lease Finance	214	197	7,164	16
Macquarie AirFinance	197	60	4,387	17
BoComm Leasing	195	34	7,562	18
Boeing Capital Corp	194	105	1,608	19
Castlelake	180	0	2,284	20
Goshawk	168	40	6,333	21
Jackson Square Aviation	154	30	6,154	22
Avmax Aircraft Leasing	148	0	402	23
Standard Chartered Aviation Finance	137	0	4,498	24
China Aircraft Leasing Company	133	201	4,579	25
Falko	119	0	642	26
Deucalion Aviation Funds	102	0	1,948	26
Regional One	88	0	309	27
ALM - Aircraft Leasing & Management	84	0	2,860	28
Cargo Aircraft Management	84	0	1,037	29
Elix Aviation Capital	83	0	666	30
Grand Total	12,263	3,526	336,886	

Figure 24: Top 30 global aircraft lessors (Source: Flight Ascend Consultancy)

Figure 25 shows the growth in the global leased aircraft fleet between 1990 and 2018:

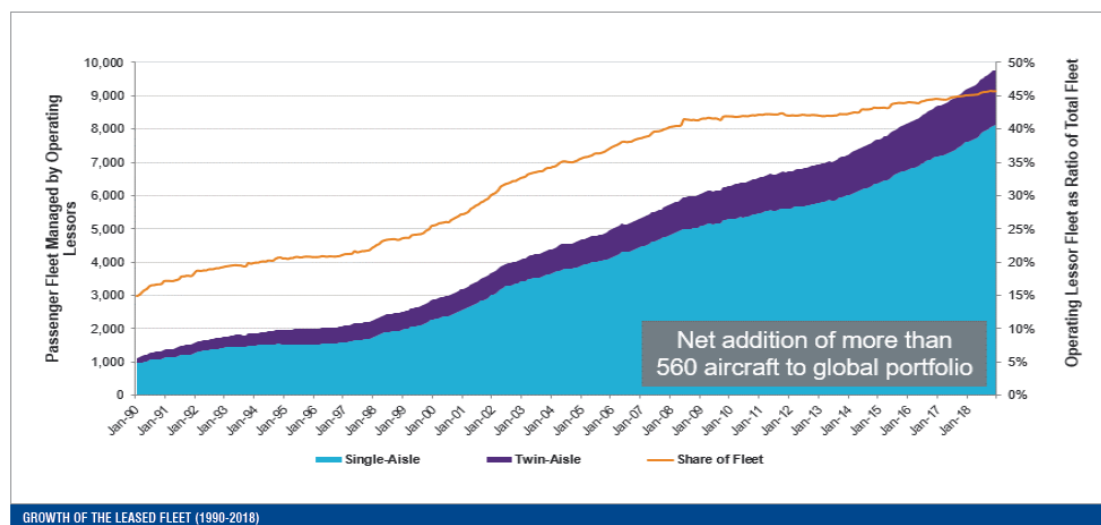


Figure 25: Growth in leased aircraft from 1990-2018 (Source: Flight Fleet Analyser)

Much of this growth in the market hinges on the continued availability of cheap money and investor demand for lessors issuing secured bonds, unsecured bonds and ABS deals because of the comparatively low rate of defaults and the stable returns available in an otherwise low-yield market environment. The general outlook and market expectations are for a stable retreat from the highs of the last 10 years with airline bankruptcies and consolidation continuing. Merger and Acquisition (M&A) activity is expected to increase in the aircraft leasing sector with the bigger, established lessors with strong balance sheets seeing further growth (KMPG, 2019). A shortage of experienced talent largely caused by growth in the sector and the slow reaction of educational institutions will continue to drive up employment costs and exacerbate the risk of aircraft lessors being attracted to foreign jurisdictions over Ireland to establish their operations.

Chapter 6: Conclusion:

The initial comprehensive literature review provided a lot of data relevant to answering the first research question about the development and continued success of the aircraft leasing industry in Ireland. However, it was not complete, particularly in regard to the origin of aircraft leasing as a business model. There is a widely-held belief that Aer Lingus, Tony Ryan and GPA developed the business model and that the industry was therefore conceived in Ireland, with this being the main reason for its success here. The information gained from the interviews allowed the author to research this further and conclude that George Batchelor was the real pioneer in the USA in the early 1950's. The interview data helped to clarify the competitive landscape of the early aircraft leasing industry, with the associated research showing that ILFC in the USA was already an established aircraft lessor when GPA was founded and grew in tandem with it to become GPA's main competitor.

However, the lack of academic research in this area meant that there was insufficient data to address the second research question. The quality of data obtained from the interviews combined with the additional research and literature review prompted by this process allowed the second research question to be answered satisfactorily. This confirmed the authors belief that an epistemological philosophy with inductive approach and survey in the form of semi-structured interviews was the correct approach for this research problem. The apparent lack of dedicated academic research in this area was also a contributing factor in this regard.

This research paper adds to the academic body of work in this field by considering and charting the development of aircraft leasing in Ireland and worldwide, describing the current status of the industry and highlighting the main risks to it. Its academic rigour is enhanced by incorporating the opinions of those at the forefront of the industry's ongoing development and success. The diversity of the selected interviewees and the open, honest feedback facilitated by the anonymous nature of the interview process were significant in helping to identify the range of risks facing the sector. This paper highlights several areas for further research including the ongoing developments and potential implications of ATAD, BEPS, EU corporate tax harmonisation, secured versus

unsecured funding, the climate change movement and the influence of ratings agencies on the development and funding models of the global aircraft leasing and aviation finance sectors.

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Appendix A

Submission of Thesis to Norma Smurfit Library, National College of Ireland

Student name: Enda Dunne

Student number: 16102266

School: Business

Course: Finance

Degree to be awarded: MSc

Title of Thesis: Aircraft leasing: A review of Ireland's role in its past, present and future development

One hard bound copy of your thesis will be lodged in the Norma Smurfit Library and will be available for consultation. The electronic copy will be accessible in TRAP (<http://trap.ncirl.ie/>), the National College of Ireland's Institutional Repository. In accordance with normal academic library practice all theses lodged in the National College of Ireland Institutional Repository (TRAP) are made available on open access. I agree to a hard bound copy of my thesis being available for consultation in the library. I also agree to an electronic copy of my thesis being made publicly available on the National College of Ireland's Institutional Repository TRAP.

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