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Yüksek Lisans Tezi

CEZMİ ÖZKAN

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Danışman: YARD. DOÇ. DR. R. CEYDA ÖZTÜRK

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ABBREVIATIONS

ACI - Airports Council International
ARFF - Aircraft Rescue and Firefighting Service
ATC - Air Traffic Control
ATM - Air Traffic Movement
BOT - Build-Operate-Transfer
CADS - Cash Available For Debt Service
CAGR - Compound annual growth rate
CAPEX - Capital Expenditure
CCTV - Closed Circuit Television
CIP - Commercial Important Person
CIS - Commonwealth of Independent States
DF - Duty Free
DGCA - Directorate General of Civil Aviation
DHMI - Devlet Hava Meydanları İşletmeleri
DSCR - Debt Service Cover Ratio
DSRA - Debt Service Reserve Account
EBITDA - Earnings Before Interest, Tax, Depreciation and Amortisation
EBITDAR - Earnings Before Interest, Tax, Depreciation, Amortisation and Rent
ECAC - European Civil Aviation Conference
EPC - Engineering Procurement and Construction contract
EUROCONTROL - European Organization for Safety of Air Navigation
F&B - Food and Beverage
GDP - Gross domestic product
GPU - Ground Power Unit
HVAC - Heating, Ventilation, and Air Conditioning Systems
IATA - Airports Council International
ICAO - International Civil Aviation Organization
IFRS - International Financial Reporting Standards
IRR - Internal Rate of Return
IST - Istanbul Atatürk Airport

JAA - Joint Aviation Authorities

LLCR - Loan Life Cover Ratio

MTOW - Maximum take-off weight

NPV - Net Present Value

OPEX - Operating Expenses

PAX - Number of Passenger

PCA - Pre Conditioned Air

PDF - Passenger Departure fee

PPS - Spending per Passenger

SOE - State Owned Enterprises

SPV - Special Purpose Vehicle

WTTC - World Travel and Tourism Council

VAT - Value Added Tax

INTRODUCTION

During the last decades, air transportation plays an integral role in our way of life. For instance, the worldwide air transportation network is responsible for the mobility of millions of people every day. It increasingly enlarge its' importance in our lives day by day. In this context, airports which are places for landing and departure of aircraft, usually with facilities for housing and maintaining planes and for receiving and discharging passengers and cargo, are located in the center of air transportation. At the same time, airports are huge infrastructures that act as an important factor for the development of regional and national economy.

Airport businesses are improving in Turkey for last decades. These means, airport business are in the process of rapid development. As it have done worldwide, advancement and changes in the air transportation such as deregulation, privatization and competitive structure, have an influence over air transportation system in Turkey. There has been a respectably increasing demand for air transportation. According to the global researches, demand will continue in the near future. In the light of the improvement in the industry, paper investigates which factors are effective in determination of revenues and costs of airport operator with an empirical analysis on Istanbul Ataturk Airport.

For large scale type of businesses like building up or operating airport, project finance way of financing is commonly used. This study is prepared to establish a project finance model for a typical airport management. The main aim of the study is to bring out possible cash flows of the project in consideration of the past realized values of Istanbul Atatürk Airport where TAV Airports Holding Corporation is leaseholder until January 2021.

In this study, the project finance model is created in consideration of industry-like parameters. This paper will examine airport traffic forecasting, revenue and cost projection, airport charges regulation, syndicated credits and other cases which are special to airport management sector. With the help of the projection, internal rate of return for the project is calculated.

In addition, a regression model is created in order to define a linear relationship between parameters and profit and loss statement of the Project Company. After the definition of linear relationship, internal rate of return change of the project sensitive to the parameters accordingly.

1. ADVANCEMENT OF AVIATION SECTOR AND DEFINITION OF AIRPORT MANAGEMENT CONCEPTS

1.1 OVERVIEW OF AVIATION SECTOR

Mankind's historical development shows that the breathtaking speed of the developments is experienced since 20th century. In a developing and progressive way of living, developments are experienced likewise in transportation which includes such as air, rail, road, water, cable, and pipeline. People are getting more and more mobile than ever before. In this context, aviation sector share in total transportation increase so as its importance. Generally, aviation includes all aircraft activities of non-scheduled civil flying, both private and commercial. We can also add other types of flights to the heading of aviation sector such as business flights, air ambulance, crop dusting, charter flights, traffic reporting, police air patrols, forest fire fighting, private flights and flight training.

With all its subparts the aviation sector which has been rapidly developing since early 20th century, today forms significant point in our life. The speedy and comfortable way of traveling introduced by aircraft, has resulted in the requirement of creating new public areas. These areas are named airports. An airport is a location where aircrafts take off and land. Aircraft may be stored or maintained at an airport. An airport consists of at least one surface such as a runway, a helipad for takeoffs and landings, and often includes buildings such as hangars and terminal buildings. Added that, airports are like a small town where lots of people 24 hours in a day are working inside.

1.2 THE IMPROVEMENT OF AVIATION SECTOR

Managing an airport is similar to be mayor of a city. The reason of this similarity is that an airport is comprised of a huge variety of facilities, systems, users, workers, rules, and regulations. Also, just as cities thrive on trade and commerce with other cities, airports are successful in part by their ability to successfully be the location where passengers and cargo travel to and from other airports. It is mostly the important issue that the location of the airport affects the profitability of an airport.

Airports are complex industrial enterprises. They bring disparate elements and activities together to function for both passenger and freight. To express in another words, airports take role of the interchange between air and surface transport. An airport is essentially one or more runways for aircraft together with associated buildings or terminals where passenger or freight transported by the aircraft are processed.

In light of this importance, airports have developed in response to the fast growth of the world's airline industry and play an important role in the air transport industry as well as in the economic and social development of the regions they serve. As the air traffic increases, the region around the aircraft is affected in a positive way.

The United States has by far the greatest number of airports in the world. More than half the world's airports and more than two-thirds of the world's 400 busiest airports are located in the United States.[1] During the last few decades, these airports worldwide experienced steady global air traffic growth. In 2008, airports around the

[1] Wells, A. T., S. B. Young, Ph.D. Airport Planning &Management, USA, McGraw-Hill, 2004, p.4

world handled 4.5 billion passengers, 77.9 million tons of cargo, and 66.9 million aircraft movements. The Top 100 airports handled about two-thirds of the passenger volume and more than 85 percent of the cargo tonnage worldwide in 2008. From 1998 to 2008, these top airports recorded a 33.4 percent increase in passengers and a 30.6 percent gain in cargo – an average annual growth rate of 2.9 percent and 2.7 percent respectively – despite the crisis years of 2001 to 2003 which faced a decrease in dynamic traffic growth due to terror attacks, SARS and the Iraq war.[2] Past data indicates that in the medium and long-term growth remains confidently strong within the airport industry.

Aviation market liberalization has resulted in tremendous air traffic growth at worldwide airports in the previous 20 years. Changing market conditions, global airline competition and increasing pressure on cost and revenue have significantly changed the international aviation business. This has led to greater competition among airports as well. As the liberalization increase in the aviation market, the competion among players in the sector increases either. The reason of this competition can be explained as follows;

- Ongoing concentration in the airline industry (global mergers and alliances) that creates specialized companies that increase their portion in overall of the aviation sector. For instance, any player in the sector comes cross as a terminal operator at the same time an airliner that carries passengers. So that, the rules of the sector is changing. Added that development of multinational airport companies are the results of the competition.

- New airline business models such as low cost carriers that are also seen in Turkish market as well.

- Airline hub strategies which mean that an airline uses as a transfer point to get passengers to their intended destination and travelers moving between airports not

[2] Shulte S., Financing Airport Infrastructure – the Fraport Perspective, May 2009, p.2

served by direct flights change planes en route to their destinations. This also changes the role of business as these strategies are made to reach higher number of passengers.

- Increasing extend of catchment areas supported by high-speed rail links between the airports that provides to reach higher number of passengers. To make this expression clear, European airports can be given as an example. They are no longer mere infrastructure providers but have become fully developed businesses. For instance, Europe has two distinguishing features from airports elsewhere in the world, there are an enormous number of airports and, the airports are connected with and compete with a well-developed rail system. The rail system has reduced the distinction between airports and insofar their substitutability. On the other hand, hubs like Schiphol and Frankfurt have increased their catchment areas and gained market power.[3]

This tendency of the global market force to change the ways of business. Faced with the necessity of financing their own operating and infrastructure development costs, airports have had to diversify their revenue sources. With a meaning of relying not only on traditional aeronautical revenues made up of airport charges but also on real estate, retailing, advertising, parking, etc. One of the main reasons of the changes in the way of business is the extent of government involvement. The result of the change is that government in the sector gives way to private companies to make business. So that, privatization has become an increasingly important trend in the airport industry, accelerating commercialization, competition and introducing even more efficiency across the airport sector.

[3] Gillen D., Airport Economics, Policy and Management: The European Union, 2006, p.8

1.2.1 Privatization in Aviation Sector

In the general meaning, privatization refers to shifting governmental functions and responsibilities, in whole or in part, to the private sector.

Historically, airports and airlines have been considered as essential components of aviation system, and they were regarded as public utilities. Operational and handling activities in aviation sector were targeted as being fundamental for the development of the airport business, and commercial activities had a less important role to play. As a matter of fact, government takes role in handling and operational part of the business predominantly. For that reason, airport assets and property have always been publicly managed and commercial activities have been contracted or outsourced to private companies. In such an environment, there was no need for economic regulation as it was seen as superfluous. The traditional airport management model which is under the control of the public becomes unsustainable when most governments begin to be concerned about the burden of airport financing and its lack of efficiency. However, for many years, most of airports around the world have continued to operate under this model of airport management.

Privatization movement changes the perception of the business model. The airport management industry started to transform with changes being brought about in the traditional airport management model since the 1980s. Currently, governments are increasingly regarding airports as potential profit-making enterprises that make the tenders more competitive and profitable for government.

Three potential economic gains are obtained from privatization, namely improvements in operating efficiency which has a meaning of cutting costs and

boosting revenues than public management, the introduction of new management styles and marketing skills directed to serve users with a more consumer-oriented approach, and better investment decisions.

Airport privatization means the infusion of capital by private sectors to gain partial or total control over an airport's activities and facilities. Many airports have been privatized worldwide since the trend of privatization was introduced. In 1987, the British government initiated the sale of its commercial airports under the Thatcher government. The government owned British Airport Authority (BAA) was offered to the public for 2.5 billion USD.[4]

1.2.1.1 Airport Privatization Techniques

A simple view of the privatization as the change of ownership of property rights from public entities to private sector is misleading. Most privatization did not involve actual sale of the full shares of airport property. Airport privatization usually involves only the transfer of some ownership for some period of time to private investors.

In the general meaning there are five methods of privatization which are contracting out, contract management, long-term lease, build-operate-transfer and sale of shares.

[4] Vasigh B., M. Haririan, An Empirical Investigation of Financial and Operational Efficiency of Private versus Public Airports, Journal of Air Transportation, 2003, p.92

(a). Contracting Out

This method is the traditional tool to privatize state owned enterprises (SOE) and to leave up public control. It involves contracting out for the provision of selected services such as restaurants, parking, security services, cargo, baggage handling, and fueling services. The state enters into agreements with private vendors to provide services. The state pays contractors to provide the services. Under this scheme governments retain the right to establish business policies and manage the airport.

(b). Contract Management

The second tool for airport privatization involves the private sector in management contracts. The state retains the ownership and investment responsibilities. Only management and operations are handed over to the private sector.

Typically, in a facility management contract, the operating budget is proposed by the contractor and approved by the government; funds needed for budgeted items are appropriated by the government and passed through to the contractor. Fees and charges are paid by users to the government agency, not to the contractor. The contractor receives a management fee from the government agency, which may be based in part on the contractor's performance. The facility's employees and managers work for the contractor, not the government. Contract management can be used for airports of all sizes and economic conditions, though it is generally most applicable where an airport has been losing money. If an airport is inherently unprofitable, for instance its costs are very much more than its current and likely future revenue potential, the motivation for contract management is usually to reduce costs and increase revenues, thereby reducing the extent of the airport's deficit.

(c). Long-term Lease

A long-term lease is quite different from a management contract. Generally, a lease is used in preference to a contract where significant airport development is anticipated. The term of the lease is often related to the length of time needed by the

private operator to recover its investment in new facilities. The private entity pays to the lessor, which is government, certain predetermined lease money or a concession fee.

Under this method, the state can turn over operations and management, as well as investment responsibilities, to the private sector. The development works at the airport are generally undertaken by the private entity at its own cost. The main objective for a government is to increase funding while at the same time transferring operational responsibilities.

Long term lease period is more than 20 years. If lease is short or medium term, the period is below 20 years.

(d). Build-Operate-Transfer

In this form of privatization method, wherein a private entity receives a concession from the public sector to finance, design, construct, and operate a facility stated in the concession contract.

BOT; or its variation of Build-Own-Operate-Transfer BOOT is commonly used technique for this option. This facilitates large new investments but still maintains government ownership and control. BOT transactions are relatively complex and various financial and technical specifications are needed in order to be successful. The lack of private ownership might impose difficulties in raising and investing large amounts of capital from the private sector.

Another option is transferring the ownership of the airport along with management and investment responsibilities. A common model for this type of privatization is Build-Own-Operate (BOO), where the private sector is responsible for

current investments and financing the instruction of the airport. This can be achieved by permitting full or partial divestiture. In this time limit on the concession is eliminated, providing private sponsors the ownership and operation rights to the facility in perpetuity. Divestiture, finally, involves the transfer to the private sector of the ownership of existing assets and the responsibility for future expansion and upkeep. The private company is responsible for financing and carrying out the investments required to meet the obligations specified in its license or by the regulator.

(e). Sale of shares

This way of privatization covers the sale of either a partial or the entire airport. Full divestiture (sale) is the mode of choice when the airport is profitable but may not be maximizing its revenues under government ownership and/or management. Governments generally sell entire airports in order to turn back its core business. Added that they use the proceeds either to reduce outstanding debt or for investment in other sectors. This was one of the reasons for the British government's 1987 sale of the British Airports Authority.

1.3 OVERVIEW OF THE AIRPORT INDUSTRY IN TURKEY

Turkey has made significant progress in the aviation sector during the last years and has achieved a graphic over the aircraft and passenger traffic increase worldwide. Related to this progress, many projects are developed regarding the requirements and capacity problems arising at airport terminals. Airports, which represent the most important base of the aviation sector, are financed and operated by the public in Turkey. However, the airport business passes into private hands as a final product of privatization.

Turkey case has started during the second half of 1980s. Liberalization has affected the government in those days and government was started giving its power in some of the government institutions to private sector companies. As the liberalization steps have worked more infrastructure investment change hand from public to private. Airport terminal investments require huge amounts of capital so that while Turkey is changing and improving, these kinds of investment play important roles in private hands.

In aviation sector of Turkey, there are cornerstones of privatization applications. One of them is 70% share sales of Uçak Servisi A.Ş. (USAS) which is a catering firm in 1989. After that, in 1995 ground handling firm Havaş A.Ş. shares is sold. In those years, catering and ground handling services were important sides of aviation sector. So that, ownership in those business areas changed from public to private. On the other hand, in 1990, Turkey's number one ranked state–owned airliner company THY, which has been dominant player in the sector, has started to be privatized. Today, 51% of the shares of THY is publicly traded, another words more than half of THY is privatized. Addition to that, at the year of 2003, the private airline companies have started doing business in domestic flights which causes a boost in domestic traffic of Turkey.

In terminal operator part of aviation sector has also subjected to change and affected from the privatization movement. Having arrived at the year 1990, the aerodrome passenger terminals in Turkey had remained extremely inadequate in terms of contemporary technology, the rapidly increasing number of passenger comfort. Therefore, it has been resolved during those years to build new passenger terminals. In 1997, Istanbul Atatürk Airport is decided to partially privatize with its international terminal and parking lot in the way of Build-Operate-Transfer model which had been newly started to be implemented by the State. The other airports privatized by DHMI,

State Authority are Antalya airport international terminal, Istanbul Ataturk airport domestic terminal, Ankara Esenboğa airport, Izmir Adnan Menderes airport.

1.3.1 Airport Policy of Turkey

In the air transport sector, the Directorate General of Civil Aviation (DGCA) and Directorate General of State Airports Administration (DHMI) are the main institutional agencies that are under the responsibilities of Ministry of Transport and Communications. In the general meaning, the operation of airports and air traffic control services are performed by DHMI and the DGCA is responsible for policy making and market regulation in air transport sector.

1.3.1.1 Ministry of Transport and Communications

The Ministry of Transport and Communications is responsible for the administration and policy definition for the airports sector. These responsibilities include:

- Definition of civil aviation policy,

- Passing and issuing of all air transport laws,

- Negotiations and relations with other National Aviation Authorities including the negotiations with EU relating to “open skies” policy,

- Issue of licenses for airports and airport safety,

- The issue and approval of licenses for civil airline operators.

The Ministry is also responsible for the approval and issuing of licenses for civil airlines. Turkish Airlines remains the national flag carrier. There has been a rapid expansion of new private operators. In 2008 there were 17 airline companies operating a total of 270 aircraft, offering 43,524 seats.[5] This is compared with THY operating with 127 aircraft offering 22,238 seats.[6]

1.3.1.2 The Directorate General of Civil Aviation

The Directorate General of Civil Aviation is part of the Ministry and is responsible for the management, monitoring and regulation of all aspects of Air Traffic Control (ATC) services including:

- The international standards for ATC,

- The quality of ATC services,

- The assessment of systems and equipment,

- The purchase of new services, equipment and advisory services.

It is the policy of the Turkish government to continue to withdraw from the operation of airport terminals and leave control to the private sector. However, the BOT program for airport terminals in Turkey does not include runways. These will remain in public ownership and be the responsibility of the Directorate. This will include operation, maintenance, purchase of systems and equipment and all aspects of safety and security, including airport perimeter security.

[5] http://212.174.155.210/site/operasyonrapor.jsp?k=0&yil1=2003&yil2=2009&ay=11 (14.11.09)

[6] http://wwwdownload.thy.com/download/investor_relations/trafik_verileri/aylik_traffic_verileri_2008.pdf (14.11.09)

Turkey is a member of the International Civil Aviation Organisation (ICAO), the European Civil Aviation Conference (ECAC) and Eurocontrol and adheres to the regulations of these international governing bodies. In 2001, Turkey became a full member of the Joint Aviation Authorities (JAA), which is an associated body of ECAC representing the civil aviation regulatory authorities of a number of European States who have agreed to co-operate in developing and implementing common safety regulatory standards and procedures.

1.3.1.3 State Airports Administration (DHMI)

The State Airports Administration (DHMI) is answerable to the Ministry of Transportation and Communications and as a regulatory body has two principal tasks:

- To overview the management of the private BOT operators and the operation of a number of airport terminals,

- To manage and monitor all Turkish airspace.

In this context, DHMI is obliged to perform its duties assumed, according to the International civil aviation rules and standards. DHMI is a member of the ICAO – International Civil Aviation Organization which has been founded according to the Civil Aviation Agreement put into force for the purpose of ensuring the safety of life and property in international air transport and to ensure regular economic work and development. Besides, it is also a member of the relevant international associations such as the "European Organization for Safety of Air Navigation (EUROCONTROL)" and the ACI – Airports Council International. The DHMI services to more than 361 foreign commercial airways companies and necessary terminal and passenger services to about

35 millions domestic flights and international flights passengers, who prefer the air way for their travels, along with domestic airway companies, whose number is gradually increasing day by day.[7] In the framework of the air navigation and aerodrome operational services by the DHMI, there have been significant increases in the recent years, in the aircraft and passenger traffic served.

The State Administration is also responsible for the management, regulation and securing of the revenues due to the State from the operation of the BOT schemes in operation. It is also responsible for the issue and assessment of the enquiries involved in the tendering process for new BOT terminal projects and for security projects.

Turkey has 40 airports under the control of DHMI open to civil air traffic. The major international terminals are Istanbul Atatürk Airport, Ankara Esenboğa Airport and Izmir Adnan Menderes Airport. The other major flight points are Adana, Trabzon, Nevşehir, Dalaman, Bodrum, Isparta and Antalya. Airports in Bursa, Tekirdağ, Erzurum, Gaziantep, Kars, Samsun, Van, Denizli and Kayseri are open to unscheduled and charter flights.

1.4 AIRPORT FINANCIAL MANAGEMENT

1.4.1 Functioning Systems of an Airport

If the airport can be considered as a functioning machine, the main objective of its operations staff is to run the machine on a full-time basis..

[7] Acar M. C., The Build Operate Transfer Model For Aerodrome Terminal Buildings, Directorate General of Civil Aviation, 2009, p.176

One of the functions is related to communication system. Modern airports cannot function without an adequate telecommunication capability. At smaller airports, a simple telephone system plus a few hand-held radios may be sufficient. As the volume of airport activity increases, the need will arise for a dedicated telephone switchboard which, if economically feasible, may eventually be established as a 24 hour/day operation.

Second function causing big part of expense item is securing the airport. Large numbers of people pass through airports. Such gatherings present a target for terrorism and other forms of crime due to the number of people located in a small area. So that, it is highly crucial issue for airport management. It means that manpower, training, inspection and necessary equipments. The airport security function can be subdivided into these three categories: Anti-hijacking activities, traditional police services, plant security.

Third function is related to aircraft rescue and fire fighting system. Since the most hazardous period of flight involves the take-off and landing phases, it stands to reason that most aircraft accidents and incidents will occur on or near airports. Furthermore, it is reasonable to assume that the accident risk increases as (1) the total volume of aircraft operations increases, and (2) more high performance aircraft are operating at a particular airfield. For these reasons, minimum requirements for aircraft rescue and firefighting service (ARFF) must be established at the busier airports which receive scheduled airline service.[8] In this context, firefighting involves the response, hazard mitigation, evacuation and possible rescue of passengers and crew of an aircraft involved in an airport ground emergency.

[8] Hoerter S., The Airport Management Primer, 2001, South Caroline, p.39

Other function is a snow removal program that is not required at all airports; however, at those locations where it is a necessity, the snow removal process can require a very intense effort.

Other main function is the maintenance. Airports have large physical plants that require ongoing maintenance in order to be operationally available to aviation users. For instance, baggage handling systems, x-ray, walking doors, elevators, camera systems, Air Traffic Management and Control Systems, Airport Communications and Wireless Applications, Flight Information Display system are the parts of functioning airport structures. It is important to note that there are many building systems in large terminal buildings. Modern heating, ventilation, and air conditioning systems (commonly called HVAC). Proper maintenance is also necessary to keep these expensive assets in service for their full economic lifespan. Without an adequate base of training and experience, an airport employee will not be able to effectively maintain these critical assets.[9]

1.4.2 Operating Expenses

In order to maintain the functions of airport and make these systems work properly, airport operator is exposed to operating expenses.

Operating expenses in an airport terminal generally divided into two. One is related with general administrative expenses, other one is cost of production services.

[9] Hoerter, p.43

Personnel costs: This would include direct remuneration to personnel, as well as expenses for social and medical insurance, pensions, travel subsistence allowances, employee training and other such costs that may be associated with employee compensation or development. Personnel costs are belonging to both of the expense groupings. In a crowded airport, number of administrative personnel is lower than the other personnel that are related to the core business such as operation, security and technical works.

Supplies: This would include the cost of spare parts and consumable materials that the airport actually incorporates. Such costs include the operation and maintenance of fixed assets (e.g. vehicles, machinery, furniture and fixtures) provided such items are not also listed as depreciable assets such as minor fixed assets. Also in this type of expense we can add such as heating, air conditioning, lighting, water, cleaning, laundry, sanitation. There are critical expense items in supplies. For instance, electricity, heating/ cooling are the main cost items of many airport managements.

Services – contracted: This includes payments made to others for the provision of airport facilities and services. Such as landscape, pesticide, garbage carrying expenses are subject to contracted expenses. These kinds of expenses can be given to subcontractor.

Other costs – consultancy: Consultancy expenses consist of

- Legal consultancy
- Audit fees (IFRS and TAX audits and related travel and accommodation expenses)
- Financial consultancy (VAT report fees and other report fees)

- Technical consultancy
- Language translation consultancy

Capital costs: In this type of costs, depreciation, interest and lease payments, credit principal payments are included.

Airports also often incur non-operating expenses including the payment of interest on outstanding debt (bonds, notes, loans, etc.), contributions to governmental bodies, and other miscellaneous expenses.

An increasingly large percentage of airport expenses are derived from required insurance to cover various areas of liability. The basic airport premises liability policy is designed to protect the airport operator for losses arising out of legal liability for all activities carried on at the airport. Coverage can be written for bodily injury and property damage.[10]

Financial expenses mainly consist of below listed items:

- Interest expense of loans
- Performance bond commission
- Political risk insurance premium
- Commitment fee for the un-used loan capacity
- Agency fee

[10] Wells, Young, p.314

To analyse operating expenses according to the expenditure area, we can divide operating expenses into four major groupings: airfield; terminal; hangars, cargo, other buildings and grounds; and general and administrative expenses.

Operating and maintenance expenses associated with the airfield area include:

- Runways, taxiways, apron areas, aircraft parking areas, and airfield lighting systems maintenance

- Service on airport equipment

- Other expenses in this area, such as maintenance on fire equipment and airport service roads

- Utilities (electricity) for the airfield

Operating and maintenance expenses associated with the terminal include:

- Buildings and grounds—maintenance and custodial services

- Improvements to the land and landscaping

- Loading bridges and gates—maintenance and custodial services

- Concession facilities and services

- Observation facilities—maintenance and custodial services

- Passenger, employee, and tenant parking facilities

- Utilities (electricity, air-conditioning and heating, and water)

- Waste disposal (plumbing)—maintenance

- Equipment (air-conditioning, heating, baggage handling)—maintenance

Operating expenses related to other buildings are nearly same as terminal area. On the other hand, general and administrative expenses mainly includes personnel expenses, advertising expenses related to marketing, fringe benefits to the personnel, traveling and representation expenses.

1.4.3 Operating Revenues

Airport revenues are divided into two; aviational revenues and nonaviational revenues.

1.4.3.1 Aviational Revenues

In general meaning, terminal management operates the terminal and mainly gives passenger, ramp and check-in counter services. A fee is charged to each airline based on the number of passengers that utilize the airport, ramps utilized by aircrafts and check-in counters utilized by the airlines.

They are related to passengers and aircraft movements. Passenger fee revenue, counter revenues are attained from the passenger. Services given to the aircraft docking to the bridge is related to the aircraft.

Aviation revenues are narrowly defined by lease agreement and regulated by DHMI tariff, which consists of;

Passenger revenues consist of passenger departure fee (PDF) and counter revenues. Collection of passenger departure fee revenue from the airlines is assumed by the company as per lease agreement.

Counter revenues are planned based on per departing pax average revenue for international terminals and per departing aircraft for domestic traffic.

Bridge revenue is received per aircraft that docked to the bridges. Bridge revenue tariff is determined by DHMI. Projected DHMI tariff, average docking hour per ATM and Maximum Takeoff Weight (MTOW) type mix is used to estimate cash inflows. Other than bridge revenues, 400 Hz GPU services, potable water and PCA are other sources of revenues. The fee for 400 Hz GPU services, potable water and PCA are also based on a DHMI EUR tariff.

1.4.3.2 Non-Aviational Revenues

1.4.3.2.1 Real Estate Revenues

Major real estate revenues are office rent, common charges, utility revenues and parking lot revenues.

Rent revenue and relevant common charge is planned under 6 different categories namely: Office, Welcome Desk, Info desk (stand), Antenna, ATM and Rent a Car.

Common charge revenue is calculated from rental offices, exchange office, land side retail, healthcare, duty free and food& beverage. The biggest part of the revenue is calculated from the square meter of DF and F&B shops. Waste water, heating/ cooling, lighting, security, cleaning expenses of common areas are divided to total common square meter in order to find the common expense per square meter. Common charge revenues other than DF and F&B are calculated from the agreement between the tenants.

Utility revenues consist of all infrastructure related revenues from tenants and passengers namely electricity, telephone, water, waste water treatment, heating/ cooling and healthcare revenues. Consumptions of electricity, water, waste water and heating/ cooling are multiplied by sales unit price that constitutes the biggest part of the utility revenues.

Parking lot is the largest real estate revenue. It is calculated by the tariff multiplied by the cars parked in the lot area.

1.4.3.2.2 Retail Revenues

Major retail revenues are;

- Shopping revenues (Duty Free, F&B, Land side retail),

- Advertising revenues,

- Service revenues (Exchange office, Baggage wrapping, CIP)

Duty Free is the largest revenue item in retail revenues. For instance, this concession revenue is based on revenue sharing between terminal operator and the duty free (DF) concessionaire. Duty-free shops (or stores) are retail outlets that do not apply local or national taxes and duties. They are found in the international zone of international airports.

Food and beverage (F&B) is the second largest retail revenue item. For instance, terminal operator is a variable rent based on a fixed percentage of all net sales of the concessionaire. It covers the making of, and delivery of foods to passengers.

Advertising revenue is related with the commercial areas of terminal building.

Baggage wrapping revenue is related to some of the passengers that are departing from terminal.

Similar to operating expenses, airport operating revenues can be divided into five major groupings: airfield area, terminal area concessions, airline leased areas, other leased areas, and other operating revenue.

The airfield or airside of the airport produces revenues from sources that are directly related to the operation of aircraft:

- Landing fees for scheduled and unscheduled airlines, itinerant aircraft, military or governmental aircraft

- Aircraft parking charges in hangars and on paved and unpaved areas

In the case of airports under the control of DHMI, Turkey, some of the operating revenues from airfield or airside of the airport are belonging to DHMI such as landing fees and parking charges.

However, operating revenue related to aircraft such as bridge revenue, GPU revenue and water revenue are belonging to terminal operator. Cause those revenue items are related to the aircraft that is docking to the bridge of the terminal. Bridges of the terminal are the belongings of the terminal so that they are commercial areas of terminal.

Terminal concessions include all of the no airline users of the terminal area:

- Food and beverage concessions (includes restaurants, snack bars, and lounges)

- Travel services and facilities (includes checkrooms and lockers, flight insurance, restrooms, car rentals, and telephones)

- Specialty stores and shops (includes boutiques, newsstands, banks, gift shops, clothing stores, duty-free shops, etc.)

- Personal services (includes beauty and barber shops, valet shops, and shoeshine stands)

- Amusements (includes video arcades, movie and TV rooms, and observation decks)

- Display advertising

- Outside terminal concessions (includes auto parking, ground transportation, hotels and motels)

Other operating revenue includes revenues from the operation of distribution systems for public utilities, such as electricity and steam, and contract work performed for tenants. Other miscellaneous service fees are also included under this category.

Airports also generate non-operating revenues, including interest earned on investments in governmental securities, local taxes, subsidies or grants-in-aid, and selling or leasing of properties owned by the airport but not related to airport operations. The magnitude of non-operating income can vary considerably between airports.

1.4.4 Pricing of Airport Facilities and Services

At most commercial airports, the financial and operational relationship between the airport operator and the air carriers serving the airport is defined in legally binding agreements that specify how the risks and responsibilities of running the airport are to be shared. To express other words, these contracts establish the terms and conditions governing the air carriers' use of the airport. They are commonly termed as airport use agreements.

Major commercial airports are composed of a wide range of facilities and services for which fees, rents, or other user charges are assessed. The facilities and

services provided to users generate the revenues necessary to operate the airport and to support the financing of capital development.

The combination of public management and private enterprise uniquely characteristic of the financial operation of commercial airports is reflected in the divergent pricing of airport facilities and services. The private enterprise aspects of airport operation, the services and facilities furnished for nonaeronautical use, generally are priced on a market pricing basis. On the other hand, the pricing of facilities and services for airlines and other aeronautical users is subject to the tariffs of the state authority, in Turkey, DHMI is the state authority.

The structure and control of fees, rents, and other charges for facilities and services are governed largely by a variety of long-term and short-term contracts, including airport use agreements with the airlines, leases, and concession and management contracts.

There are ways of pricing options while taking business with tenants in the terminal concession area. Concessions contracts typically provide the airport operator with a guaranteed annual minimum payment, typically based on a rental rate of leased space, a specified percentage of the concessionaire's gross revenues, or both. Restaurants, snack bars, gift shops, newsstands, duty-free shops, hotels, and rental car operations usually have contracts of this type. Terminal concessions contracts are often bid competitively, and they range in term from month-to-month agreements to contracts of 10 to 15 years duration such as hotel agreements. Airport parking facilities might be operated as concessions; they might be run by the airport directly, or they might be managed by a contractor for either a flat fee or a percentage of revenues.[11]

[11] Wells, Young, p.324

In recent years, airport operators have applied new marketing and pricing strategy of the terminal commercial areas. These competitive strategies have resulted in significantly increased revenues from terminal area concessions for airports, thus reducing the dependency of airports to the revenue from the air carriers. This means that airports are no more than a simply serving to air carrier, they are also a completely huge revenue sources from nonaeronautical areas.

In general, revenue diversification enhances the financial stability of an airport. In addition, the specific mix of revenues might influence year-to-year financial performance. Some of the major sources of airport revenue (notably landing fees and terminal concessions) are affected by changes in the volume of air passenger traffic, whereas others (airline terminal rentals and ground leases) are essentially immune to fluctuations in air traffic.[12]

1.4.5 Factors Affecting Revenues of Airport

For an airport, concession contracts are highly important. Many airports worldwide use those contracts while giving the right to operate food and beverage units, duty free units, parking lot units and other services items. An airport operator mostly less experienced in those areas, so that operator can chose to make legally binding agreements to give the right to operate some of airport service to other firms. As a result of these agreements, airport operator may get a share from the sales of its leaseholder or another type of revenue generation according to the terms of agreement. Therefore, the conditions of agreements are highly important in the side of an operator. If the agreement is for the benefit of operator, revenue generation is better than other cases that may be less competitive.

[12] Wells, Young, p.326

If we compare airports worldwide in the base of their revenue generating items, the size of the airport is important due to the number of revenue generating units. The larger commercial airports typically have a more diversified revenue base than smaller airports. For example, they tend to have a wider array of income-producing facilities and services in the passenger terminal complex.

Factors other than airport size also affect distribution of operating revenues. At commercial airports, for example, parking facilities generally provide one of the largest sources of nonaeronautical revenues in the terminal area. Airports that have a high proportion of transferring passengers might, however, derive a smaller percentage of their operating income from parking revenues than do destination airports. Other factors that can affect parking revenues include availability of space for parking, the volume of air passenger traffic, the airport pricing policy, availability and cost of alternatives to driving to the airport and the presence of private competitors providing parking facilities at nearby locations off the airport property. The same can be said for duty free revenues or food and beverage revenues which play also the big part of rental revenue that airport operator gets. If the prices of product sold those shops are far away from the demands of the customers, the nonaeronautical revenues are really lowered. Price is not only the determinant factor, also design of the shops, location of the shops in terminal are other factors affecting the amount of nonaeronautical revenues.

As it is seen from the determination of revenues, the terminal management pricing decisions, features of the terminal such as terminal volume and location of shops inside can play role in the high degrees.

On one hand, airport get revenue from various items, on the other hand, airport loses money to the cost items. Airport financial burdens have been driven primarily by the following factors:

- Governmental mandates, including new security, environmental and noise-related compliance costs

- Renewal and replacement of old facilities and equipment

- Airline requirements for support facilities

2. DEFINITION OF PROJECT FINANCE

Before the analysis phase of the thesis, this part gives emphasis on the theoretical framework of the project finance.

There are different definitions for project finance in the literature. According to first definition, project finance involves the creation of a legally independent project company financed with non-recourse debt (and equity from one or more participants) for the purpose of financing a single purpose such as industrial asset. Another aspect of project finance is related to rise of funds to finance an economically separable capital investment project in which the providers of the funds have interests primarily to the cash flow from the project to payback their loans and provide the return of and a return on the equity invested in the project. Project finance is also the financing of a particular economic unit in which a lender is satisfied to look initially to the cash flow and earnings of that economic unit as the source of funds from which a loan will be repaid and to the assets of the economic unit as collateral for the loan, according to the third definition.

Of these definitions, there are three key decisions related to project finance. These are investment decision, organizational decision to create a legally independent entity and financing decision involving non-recourse debt.

In the literature, key decisions of the project finance make it differs from the corporate finance investments. For instance, assets are financed as stand-alone entities rather than as part of a corporate balance sheet as in corporate finance investments, project-financed investments differ from corporate-financed investments.

For decades, project finance has been the preferred form of financing for large scale infrastructure projects worldwide. With the explosive growth in privately financed infrastructure projects in the developing world, the technique is enjoying renewed attention. In project finance, several long-term contracts such as construction, supply, off-take and concession agreements, along with a variety of joint-ownership structures, are used to create incentives by any party involved in the project.

It can raise larger amounts of long-term, foreign equity and debt capital for a project. And it protects the project sponsor's balance sheet.

To sum up, project financing has come to have a specific meaning, associated with financing structures wherein the lender has recourse only to the assets of the project and looks primarily to the cash flows of the project as the source of funds for repayment. To express with another words, lender has recourse only or primarily to the assets of the project and looks primarily to the cash flows of the project as the source of funds for repayment. The meaning of non recourse finance can be defined like that it is a loan where the lending bank is only entitled to repayment from the profits of the project the loan is funding, not from other assets of the borrower. These types of projects are characterized by high capital expenditures. The technique of project financing was pioneered in the construction of the Panama Canal, as well as the early development of railroads and oilfields in the US and UK – large-scale, capital-intensive projects with long payback periods.[13]

[13] Guidebook to Financing CDM Projects, EcoSecurities BV, The Netherlands, p.33

2.1 THE PROS AND CONS OF PROJECT FINANCE

Under project financing, a special purpose vehicle (SPV) which can be defined as a subsidiary company with own balance sheet structure and legal status that makes its obligations secure even if the parent company goes bankrupt, is usually established to undertake the project and to clearly define the legal limits of the project entity. The SPV enters into contracts with suppliers and buyers, and with companies to provide construction, operation and other specialised services.

The principal advantages of the project finance structure are:

- Ability to raise large amounts of capital: The structure enables large amounts of debt to be raised for highly capital-intensive projects.

- Limited recourse to assets of project sponsors: since the lenders only have recourse to the assets and cash flows of the project, rather than the general resources of the sponsors' other asset.

The disadvantages of the project finance structure include:

- Set-up costs: The costs of setting up the project finance structure can be significant, and can generally only be justified for larger scale projects. This means that project finance transaction is costly for small type of investments.

- Project-specific risk assessment and management: Both lenders and equity providers must pay particularly close attention to the project-specific risks, and how those risks will be managed. The relationship of the parties in this transaction is different than corporate finance transaction where the lender would primarily be concerned with the overall credit-worthiness of the borrower.

2.2 TENDENCY OF THE PARTIES IN THIS TYPE OF TRANSACTION

The project company is the borrower. Since these newly formed entities do not have their own credit or operating histories, it is necessary for lenders to focus on the specific project's cash flows. A major player in sponsoring infrastructure projects and providing financing in developing countries, the World Bank defines project finance as the "use of nonrecourse or limited-recourse financing." The use of non-recourse debt in project finance further contributes to limiting managerial discretion by tying project revenues to large debt repayments, which reduces the amount of free cash flows.

As a general principle, project sponsors and other equity providers will wish to minimise the amount of equity in the project, as this will increase the rate of return on their investment. The lender, on the other hand, will want to ensure that the equity providers have a sufficiently large financial interest in the project to ensure that they will not abandon it − the larger the equity commitment, the lower the lender's risk will be. Other words, lenders want to share the risk of the project with the sponsors. Therefore, the lender carefully evaluates the project economics, risks and risk management options for the project, before deciding on whether to finance the project, and if so, to what extent and at what cost.

A successful outcome is more likely to be achieved if project sponsors work closely with the lender through the financial assessment process to ensure that both parties share a common understanding of the project risks and agree on mutually acceptable risk management solutions. There may be trade-offs between the amount and cost of debt and the cost of risk management options for the project sponsor. For example, a lender will prefer the project to have a purchase agreement in place that guarantees a certain minimum price for the output of the project. However, obtaining

such a purchase agreement may cost the project sponsor much of the potential 'upside' in the price of the output. Therefore the project sponsor may wish to negotiate to maintain a floating purchase price in return for increasing the amount of equity in the project.

A typical project finance structure in an industrialised country would consist of 10−30% equity, 60−90% senior debt, and 0−15% junior debt.[14] In developing and emerging markets, a project finance structure will usually consist of more equity and less debt. Whether or not any junior debt is required to bridge the gap between equity and senior debt essentially depends upon the level of risk associated with the project – riskier projects will find it more difficult to raise senior debt, and hence are more likely to experience a funding gap.

2.3 PARTICIPANTS OF PROJECT FINANCE

In a project finance transaction, there are some parties participated in. These are;

The project entity is often a Special Purpose Vehicle (SPV, also known as a Special Purpose Entity, SPE) such as a joint venture company or a limited partnership set up specifically to undertake the project. Creating a Special Purpose Vehicle may be useful in order to keep a project at arm's length from the project sponsors, for legal, tax or financial reasons.

[14] Guidebook to Financing CDM Projects, EcoSecurities BV, The Netherlands, p.34

If the project is financed through debt, one or more banks may be involved in providing this. A loan from a group of banks is known as a syndicated loan. They allow the sharing of credit risk between various financial institutions without the disclosure and marketing burden that bond issuers face.

Syndicated loans allow borrowers to access a larger pool of capital than any one single lender may be prepared to make available and allow the originating lender the opportunity to provide greater customization than with traditional bilateral relationship-based loans.

In a syndicated loan, two or more banks agree jointly to make a loan to a borrower. Every syndicate member has a separate claim on the debtor, although there is a single loan agreement contract. The creditors can be divided into two groups. The first group consists of senior syndicate members and is led by one or several lenders, typically acting as mandated arrangers, arrangers, lead managers or agents.

Another party in a project finance agreement is related to construction works, if the project is related with constructing infrastructure. Construction is usually carried out by specialist contractors who have responsibility for the completion of the works, and often have to assume liability for finishing construction on time and to budget. Lenders will usually require contractors to demonstrate a good track record in completing the same or similar project activities.

Next participant is the leading participant in this transaction, sponsors. Equity may be provided by project sponsors or third party investors. Equity providers will wish to ensure that the project produces a return on their investment as set out in the business plan or prospectus.

Insurers can assist in identifying and mitigating risks associated with the project. If a risk is to be mitigated by purchasing insurance, the lender will need to be satisfied as to the track record and credit-worthiness of the insurer.

2.4 PROPERTIES OF PROJECT FINANCE

Project financings tend to be large-scale projects that require a great deal of debt and equity capital, from hundreds of millions to billions of dollars. Infrastructure projects tend to fill this category.

These transactions tend to be highly leveraged with debt accounting for usually 65% to 80% of capital in relatively normal cases.

The tenor for project financings can easily reach 15 to 20 years.

Contemporary project financings frequently rely on a newly established legal entity, known as the project company, which has the sole purpose of executing the project and which has a finite life.

To support a borrower without a credit history in a highly-leveraged project with significant debt service obligations, lenders demand receiving cash flows from the project as they are generated. The project has a strictly controlled dividend policy, though there are exceptions because the dividends are subordinated to the loan

payments. The project's income goes to servicing the debt, covering operating expenses and generating a return on the investors' equity. This arrangement is usually contractually binding. Thus, the reinvestment decision is removed from management's hands.

Raising capital through project finance is generally more costly than through typical corporate finance. The greater need for information, monitoring and contractual agreements increases the transaction costs. Furthermore, the highly specific nature of the financial structures also entails higher costs and can reduce the liquidity of the project's debt. Margins for project financings also often include premiums for country and political risks since so many of the projects are in relatively high risk countries. Or the cost of political risk insurance is factored into overall costs. So that transaction costs for financing are relatively higher costs due to documentation and longer gestation period.

The projects have high cash flow requirements and elevated coverage ratios. The contractual arrangements often prescribe intrusive supervision of the management and operations that would be resented in a corporate finance environment.

2.5 RISKS INVOLVED IN PROJECT FINANCING

Projects that use project finance not only requires lenders to commit for long maturities, but also makes them particularly exposed to the risk of political interference by governments. Therefore, project lenders are making increasing use of political risk guarantees, especially in emerging economies.

Political risk is identified in three broad categories. The first category includes the risks of expropriation, currency convertibility and transferability, and political violence, including war, sabotage or terrorism. The second category covers risks of unanticipated changes in regulations or failure by the government to implement tariff adjustments because of political considerations. The third category includes quasi-commercial risks arising when the project is facing state-owned suppliers or customers, whose ability or willingness to fulfill their contractual obligations towards the project is questionable.[15]

Financing infrastructure projects, especially in developing countries, entails a formidable set of risks. It is the role of the project finance advisor, the project sponsor and other participants to structure the financing in such a manner that mitigates these risks.

Country risks cover the political economy. The country risk in some cases serves as the ceiling for a project's risk rating. That is, no project, despite its particular circumstances, can have a higher credit rating than the country's credit rating.

Political risks cover changes within the country's political landscape, i.e., change of administration, as well as changes in national policies, laws regulatory frameworks.

Industry risks covers that competitive forces within the industry represent significant risks to the project. It is necessary for project sponsors to analyze the potential risks that their particular project faces vis-à-vis global and local industries.

[15] H. Christa, S. Kleimeier, Project Finance as a Risk-Management Tool in InternationalSyndicated Lending, 2006, p.17

2.6 TYPES OF FINANCE AVAILABLE IN PROJECT FINANCE

2.6.1 Loan

A loan or debt is an amount of money provided by a third party to a project, person or organisation that must be repaid either during or at the end of its agreed term, plus interest over the period of the borrowing. The majority of loans to projects are provided by banks.

There are many different types of loans, including:

2.6.1.1 Senior Loans or Debt

The senior debt is the debt which must be serviced before any other debt or equity in the project. This is generally a precondition of loans. The debt is usually secured over the assets of the project, which can include the contracts for sale of outputs from the project. However, it may also be secured over the assets of a project sponsor. Senior debt has the lowest risk of the commercial financing instruments as a result of having highest in priority for repayment and being secured over assets. Hence it usually represents the cheapest source of capital. The interest rate will typically be based on the interest rates prevailing in the market for the currency in question, plus a margin depending on the perceived risk of the project.

Senior loans have a stated maturity of six to nine years, but are fully prepayable at any time and prepayment penalties are rare. They are floating rate and

priced based on a spread over Euribor or LIBOR. They have maintenance-based financial covenants, usually calculated quarterly.

2.6.1.2 Other Types of Loans

- Junior (or subordinate) loans or debt: The 'junior' or 'subordinate' debt has priority for repayment after senior debt (but still before equity). It is either unsecured, or has a lower priority claim over the assets of the project than senior debt. This type of loan is often used to bridge the gap between what senior debt lenders are willing to provide and the equity that is available for a project.

- Low interest loans or debt: Loans at rates below market rate may sometimes be obtained from banks for projects which meet particular economic, social or environmental objectives. For instance, World Bank has some type of credits for social projects.

2.6.2 Equity

Equity is capital raised from shareholders. Shareholders have only a residual claim to the assets of the project company. In other words, they are last in line after other stakeholders such as senior and junior lenders have been repaid. This represents the highest level of risk, and the expected returns for equity holders are accordingly higher than for lenders. From the project developer's point of view, equity has the advantage of not having to be paid back, thereby freeing up cash flow, which is often particularly important during the early years of a project.

Equity providers receive returns through dividends or from the sale of shares. Typically, equity providers will only cover part of a project's total cost. Equity can come from many different sources, and different providers will have different expectations as to the degree of control they wish to exercise and the risk and return on their investment.

2.7 PRICING STRUCTURE: SPREADS AND FEES OF SENIOR LOAN

Senior loans have the highest seniority in the issuer's capital structure, i.e., obligations are contractually paid before subordinated securities.

Banks in the syndicate as well as earning a spread over a floating rate benchmark (typically Libor) on the portion of the loan that is drawn, they receive various fees in the name of arrangement fee, underwriting fee and others. The arranger and leading members of the credit management team generally earn some form of upfront fee in exchange for putting the deal together. This is often called arrangement fee.

The underwriters similarly earn an underwriting fee for guaranteeing the availability of funds. Other participants may expect to receive a participation fee for agreeing to join the facility, with the actual size of the fee generally varying with the size of the commitment. Another words, commitment fee paid on unused portion of the facility that ranges from 50 to 75 bps. For example, the company might have a 100 million EUR revolving credit, but it only needs to draw 20 million EUR; it must pay a

fee on the remaining 80 million EUR to compensate the lenders for keeping this money available.

Once the credit is established and as long as it is not drawn, the syndicate members often receive an annual commitment or facility fee proportional to their commitment (largely to compensate for the cost of regulatory capital that needs to be set aside against the commitment). As soon as the facility is drawn, the borrower may have to pay a per annum utilisation fee on the drawn portion. The agent bank typically earns an agency fee, usually payable annually, to cover the costs of administering the loan. Loans sometimes incorporate a penalty clause, whereby the borrower agrees to pay a prepayment fee or otherwise compensate the lenders in the event that it reimburses any drawn amounts prior to the specified term.

2.8 DEVELOPMENT OF A PROJECT FINANCIAL MODEL

A financial model is the most critical element of the financial assessment process. Most financial models are structured in a similar way and have the following features:

a. Assumptions – they may be based on expert knowledge, forecasts, technical performance specifications, contract prices or other sources. The source of each assumption needs to be clearly identified so that investors can assess whether the assumption is reasonable.

b. Calculations – the input variables are combined in a number of calculations, including tax, depreciation/ amortisation, loan balance and interest payments, and revenue and operating costs.

c. Outputs – in general, the outputs of a financial model will include:

• Cash flow statement;

• Profit and loss;

• Balance sheet; and

• Key financial indicators such as debt and interest ratios, NPV and IRR.

The most important outputs for a lender are the cash flow statement and Debt Service Cover Ratio (DSCR) over the term of the loan. The outputs are usually summarised on a year-by-year basis.

The most important of these indicators are:

i. Project Net Present Value (NPV) and Internal Rate of Return (IRR): The NPV of a project is defined as the sum of the future discounted cash flows of the project. Future cash flows are discounted by an appropriate discount rate reflecting the cost of capital, in order to convert to an equivalent Present Value; these Present Values are then summed to calculate the Net Present Value. Therefore calculating the NPV requires an assumption to be made about the appropriate discount rate that may be the Weighted Average Cost of Capital for a firm. A positive NPV indicates that the project is a good investment, another words project will yield a positive return. The Internal Rate of Return of a project is a related concept, defined as the discount rate for which a project's NPV is equal to zero. Therefore the project IRR can be calculated and

compared with either the Weighted Average Cost of Capital for a firm, or the IRR of similar projects. In any case, the project IRR should be higher than the prevailing long-term interest rate in the currency in which the project is being financed. It is not the case it would be more feasible to put the finance on deposit at that interest rate.

ii. Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA): This is a measure of the cash generating potential of the project. EBITDA is essentially the revenue of the project minus its operating costs.

iii. Interest Cover Ratio: This is calculated as EBITDA divided by interest payments and represents the ability of a project to meet its minimum financing costs (not including loan repayments). A minimum interest cover ratio is often applied by a lender, both when assessing a project, and as an ongoing requirement during the loan.

iv. Debt Service Cover Ratio (DSCR): This is calculated as the ratio of EBITDA to all debt servicing requirements (i.e. interest plus loan repayments). There is usually some flexibility in how the loan repayments are scheduled, such that the project will meet a minimum DSCR throughout the term of the loan (and in particular, during the first few years), if it achieves a conservative performance forecast. A lender's minimum DSCR requirement is always greater than 1. If the DSCR is less than 1 this means that the borrower cannot service the debt. A lender to a relatively risky project might require a DSCR greater than 2, and the cost of debt would be correspondingly higher.

This ratio is a quantitative measure used by lenders to determine whether a project's prospective net cash flow from operations can support (make timely service payment on) a given amount of debt at the indicated potentially available terms. For any

given debt service period, the debt service coverage ratio is defined as the cash available for debt service (CADS) divided by the total amount of debt service.

v. Other ratios;

Debt Service Reserve Account (DSRA): A reserve account set up to ensure the timely payment of principal and interest.

Cash Available for Debt Service (CADS): The amount of cash available to service debt after all essential operating expenses have been met.

Loan Life Cover Ratio (LLCR): The net present value of cash available for debt service (CADS) from the calculation date to the final maturity of the debt facilities divided by the principal outstanding on the calculation date.

3. RESEARCH DESIGN AND METHODOLOGY

The analytical part of the thesis is related with the concession agreement between State Authority and TAV at the date of June 2005. This concession agreement covers 15.5 years period of operation of Istanbul Atatürk Airport. The scope of the operation is including international, domestic and cargo terminal with the parking lot. The scope is crucial due to the fact that each item has different revenue parameters.

In the thesis, I use an imaginary Project Company that is assumed to be the winner from bidding process of Istanbul Atatürk Airport concession at the date of June 2005. The concession amount is used to be the same as ongoing agreement with TAV and State Authority. The realized passenger traffic figures are used in my project finance modeling. The reason of the assumption is that aeronautical revenues which are composed of passenger fee revenue and aircraft parking revenues, are 41% of all operational revenues in the auditor's report of TAV Havalimanları Holding A.Ş. of 31.12.2008. Added that, while finding the percentage of aeronautical revenue, ground handling revenue and sales of duty free goods are excluded from operating income due to the fact that those revenue items are belonging to other corporations unrelated to terminal operation.

A parametric modeling that is correlated with the passenger traffic figures, is created for the project finance. Cash inflows and cash outflows are calculated according to the parametric modeling. Calculation of cash flows is also applied to different passenger scenarios. As it will be seen from the following parts, passenger traffic of Istanbul Atatürk Airport is sensitive to radical changes in the aviation sector. 11 September 2001 World Trade Center attack can be an example of radical changes. At the end net cash flows are discounted in order to find the available IRR and profitability of the whole project.

3.1 IMPORTANCE OF FORECAST IN AVIATION SECTOR

Sound traffic forecasts are essential to any airport infrastructure development project and its financing. The main purpose of such forecasts is to identify traffic developments and to establish the associated capacity requirements of the airport.[16]

As it is said, airport master plans are developed on the basis of forecasts. From forecasts, the relationships between demand and the capacity of an airport's various facilities can be established and airport requirements can be determined. Short, intermediate, and long-range (approximately 5, 10, and 20 year) forecasts are made to enable the planner to establish a schedule of development for improvements proposed in the master plan.

3.1.1 Forecasting Methodologies

Two types of forecasting methods are available to assist planners in the decision-making process: qualitative and quantitative.

Qualitative forecasting methods rely primarily on the judgment of forecasters based on their expertise and experience with the airport and surrounding environment. Judgmental predictions of future airport activity tend not to be based on historical data, but by the foresight that certain experts have, based on their knowledge of the current and potential future environment. Qualitative forecasts may almost be thought of as opinions of future activity, although they tend to be just as accurate as quantitative methods.

[16] Airport Economics Manual, International Civil Aviation Organization, 2006, p.7-1

Quantitative methods include time-series or trend analysis models, which forecast future values strictly on the basis of historical data collected over time, and causal models, which attempt to make accurate predictions of the future on the basis of how one area of historical data affects another.

Causal (model) forecasts are based on a statistical relationship between the forecasted (dependent) variable and one or more explanatory (independent) variables. There need not be a cause-and-effect relationship between the dependent and the independent variables. A statistical correlation alone is sufficient basis for prediction or forecasting. Correlation is a pattern or relationship between the two or more variables. The more close the relationship, the greater the degree of correlation.[17]

Another reasonably sophisticated statistical method of forecasting is time-series or trend analysis, the oldest and in many cases still the most widely used method of forecasting air transportation demand. Time-series models are based on a measure of time (months, quarters, years, etc.) as the independent or explanatory variable. Forecasting by time-series or trend analysis actually consists of interpreting the historical sequence and applying the interpretation to the immediate future. It assumes that the rate of growth or change that has persisted in the past will continue. Historical data are plotted on a graph, and a trend line is drawn. Frequently a straight line, following the trend line, is drawn for the future; however, if certain known factors indicate that the rate will increase in the future, the line might be curved upward. As a general rule, there might be several future projections, depending upon the length of the historical period studied. The values for the forecasted variable are determined by four time-related factors: long-term trends, such as market growth caused by increases in population; cyclical variations, such as those caused by the business cycle; seasonal

[17] Wensveen J. G., Air Trasportation, Ashgate Publishing Company, 2007, p.246

phenomena, such as weather or holidays; and irregular or unique phenomena, such as strikes, wars, special events, and natural disasters.

The most widely used mathematical method for performing both time-series and causal quantitative forecast is regression analysis. Regression analysis applies specific mathematical formulas to estimate forecast equations. These equations may then be used to forecast future activity by applying the equations to independent variables that may occur in the future. Regression equations come in many forms. The most common regression equation is one that represents a straight line. The method used to estimate the equation of a straight line that best represents either historical trends or causal relationships is known as ordinary least-squares (OLS) linear regression analysis.

An example of a regression equation is to estimate passenger enplanements as a function of economic variables (e.g., income and fares). As it is used in this study's emprical analysis and findings section, passenger number is independent variable to find forecasted variable, operating revenues and expense. The relationship is estimated using historic data for the independent and dependent variables. The explanatory power of the equation is measured by the R^2 statistic (called the coefficient of determination). An R^2 of 0 indicates that there is no statistical relationship between changes in the independent and dependent variables. R^2 values near 1.0 mean that there is a very strong statistical relationship. Forecasts of the independent variables are used in the regression equation to calculate forecast values for the dependent variable. Most regression models for aviation demand use gross economic measures like income, population, and employment. If regression is used, it should be restricted to simple models with independent variables for which reliable forecasts are available.[18]

[18] Forecasting Aviation Activity By Airport, GRA Inc., 2001, p.11

3.2 ISTANBUL ATATÜRK AIRPORT

The empirical analysis of the project finance in terminal operator sector is based on Istanbul Atatürk Airport. IATA code for Istanbul Atatürk Airport is IST. IST is the most important airport in Turkey in terms of the amount of passenger traffic handled and the number of domestic and international destinations served. This reflects Istanbul's strategic location and its position as the commercial centre of the country. The airport enjoys a mix of both domestic and international passenger traffic, which results in it being the hub airport for connections between Turkey and the international community.

3.2.1 City of Istanbul

In order to forecast passenger demand that is the most critical variable in project finance model of aviation sector, the importance of Istanbul is to be analysed. As IST is one of the important transportation elements of Istanbul, the potential of the city has to be laid out.

Why Istanbul is so important is lying under its location and history. Istanbul as Turkey's cultural and financial centre, extends both on the European (Thrace) and on the Asian (Anatolia) side of the Bosphorus, and is thereby the only metropolis in the world which is situated on two continents. Istanbul has always been the centre of the country's economic life because of its location as an international junction of land and sea trade routes. The opening of specific markets in the city during the 1980s further strengthened the city's economic status. Istanbul is also Turkey's largest industrial centre. It employs approximately 20% of Turkey's industrial labour and contributes 38% of Turkey's industrial workspace. Istanbul is one of the most important tourism centres in Turkey.

There are thousands of hotels and other tourist oriented businesses in the city, catering to both vacationers and visiting professionals. According the database of Ministry of Culture and Tourism, in 2006 a total of 23.1 million tourists visited Turkey, most of whom entered the country through the airports and seaports of Istanbul and Antalya. Istanbul is also one of the world's major conference destinations and is an increasingly popular choice for the world's leading international associations. Istanbul is becoming increasingly colourful in terms of its rich social, cultural, and commercial activities. While world famous pop stars fill stadiums, activities like opera, ballet and theatre continue throughout the year. During seasonal festivals, world famous orchestras, chorale ensembles, concerts and jazz legends can be found often playing to a full house. The Istanbul International Film Festival is one of the most important film festivals in Europe, while the Istanbul Biennial is another major event of fine arts.

Those factors make Istanbul hearth of Turkey. As Istanbul's power to improve continues, the Istanbul Atatürk Airport is expected to improve more than today.

3.2.2 Technical Features of Istanbul Ataturk Airport

The airport is owned and operated by DHMI. TAV (Tepe-Akfen-Ventures) has operated the international passenger terminal since January 2000 and the domestic passenger terminal since July 2005.

Turkish Airlines (THY) which is the Turkey's number one airlines in terms of passenger caring, use IST as their main operating hub and home base. THY carried 71%

of all domestic passenger traffic and 55% of all international passenger traffic at IST in 2008.[19] A number of the world's leading airlines operate at IST.

All public areas feature glass curtain walls, stainless steel and ceramic panel finishes and granite flooring, accented by green plants and water effects. Located immediately below a high bay, sky lighted tubular steel roof truss, the departures hall is strikingly bright, and easily negotiated by first time passengers.

This theme is continued throughout the other public areas of the terminal, including a large duty free shopping mall and food court at the departures level, a departures level mezzanine featuring both airside and landside restaurants and CIP lounges, and a complete landside conference centre, accessible from the departures level. The arrivals level, located one floor below, which also offers duty free shopping, continues the same theme.

Travelators are provided at the arrival and departure levels, wherever necessary to ease the passenger movements through the terminal. Vertical circulation is provided by strategically located escalators and elevators. Ample customs, immigration and check-in counters are provided in order to meet summer peak-hour travel demands.

Ticket counters, banks, post office, emergency service clinic, nursery rooms, pharmacy, news stands, car rental, hotel reservation counters, prayer rooms, florists, baggage storage, trolley rental stands and toilet facilities are all conveniently available to passengers. The terminal is a non-smoking terminal, except for designated smoking areas.

[19] TAV Airports Holding, Management presentation October 2009, 2009, p.26

Passenger processing, terminal security and financial management of terminal operations are supported by superior electronic and automation systems. Systems controlling the operational and commercial aspects of the terminal operation are linked with an integral central database, thereby allowing centralised control of operation functions and automated billing for revenue collections. Systems critical to terminal operations are also capable of independent operations.[20]

All electronic systems and other functions critical to terminal operations are supported by the terminal-wide uninterrupted power supply (UPS) and stand-by generator power system (Diesel Generators).

Table 3.1 Table of Technical Features of Istanbul Atatürk Airport

Technical Features	**Units**
Total Area:	500.000 m²
International Terminal	
Terminal Area:	264.000 m²
Parking Lot Area:	180,000 m²
Duty Free Area:	5,961 m²
Food and Beverage Area:	9810 m²
Parking Lot Capacity:	7,076 vehicles
Check-in Counter:	224 units
Domestic Terminal Check-in desk:	108
Passport Desk (Arrival Floor):	42
Passport Desk (Departure Floor):	48
Passenger Bridges:	23
Bus gate:	12 units
Elevators:	57
Baggage Carousel:	11 units
Domestic Terminal	
Terminal Area:	62.500 m2
Check-in Desk:	108 units
Ticket Sales Desk:	28 units
Baggage Carousels:	11 units
Passenger Bridges:	9 units
Escalators:	11 units
General Aviation Terminal	
Terminal Area:	1.286 m2

Source: http://www.tavairports.com/index_en.asp (12.11.2009)

[20] http://www.tavairports.com/index_en.asp (12.11.2009)

3.2.3 Facilities of IST

IST has three runways, with close twin parallels, which are 210 meters apart, aligned north/south (18R/36L and 18L/36R) and a crosswind runway aligned approximately north-east/south west (06/24). The parallel runways are both 3,000 meters in length, and the crosswind runway is shorter at 2,300 meters.

There are thirteen apron areas, comprised of five apron types:

- Domestic

- International

- Cargo

- Maintenance and technical services, located to the north of the main terminal which serves a maintenance hangars

- General Aviation located to the west of the twin runways which serves Business and General Aviation aircraft, as well as being used as a parking area for government and disused aircraft. The General Aviation (GA) Terminal is located within this area.

There are ninety aircraft stands, although the number of aircraft stands is subject to change according to aircraft types and DHMI rules.

IST has three passenger terminal buildings:

- International terminal: Opened in 2000, with a DHMI declared annual capacity of 20 million passengers. This terminal also has a capacity of 264,000 m2.

- Domestic terminal: Opened in 1984, with a DHMI declared annual capacity of 7.5 million passengers. This terminal also has a capacity of 62,500 m2.

The daily profile of aircraft movements at IST is largely similar throughout the week. The profile of movements across a typical day is generally flat and even, which suggests that there are aircraft movement capacity constraints across much of the day and as there are few troughs in demand during the day there is little opportunity to fill in any shoulder periods with further movements until capacity is increased. The situation has been alleviated with the recent opening of a third runway.

DHMI has stated that three runway have a capacity of fifty aircraft movements per hour. The amount of capacity that the runway provides is crucial in the determination of the aircraft movement capacity of the airport.

3.3 PASSENGER TRAFFIC

IST is the most important airport in Turkey for both domestic and international passenger traffic. It is accounted for 36% of total air passenger traffic handled at Turkish airports in 2008. IST had a throughout of 23.5 million passengers in 2008.

In 2008 IST handled around 9.2 million domestic and 14.3 million international passengers, which together accounted for 36% of the total passenger traffic handled at all the airports of Turkey in 2008. The development of domestic and international passenger traffic at IST since 2004 to 2008 shown in the table 3.2.

Table 3.2 Table of Passenger Traffic Developments at IST 2005 to 2008.

(000s)	2004	2005	2006	2007	2008
Domestic Passengers	5.431	7.512	9.092	9.596	9.213
International Passengers	10.170	11.781	12.174	13.600	14.316
Total Terminal Passengers	15.601	19.294	21.266	23.196	23.529
Share of Dom.	35%	39%	43%	41%	39%
Share of Int'l	65%	61%	57%	59%	61%

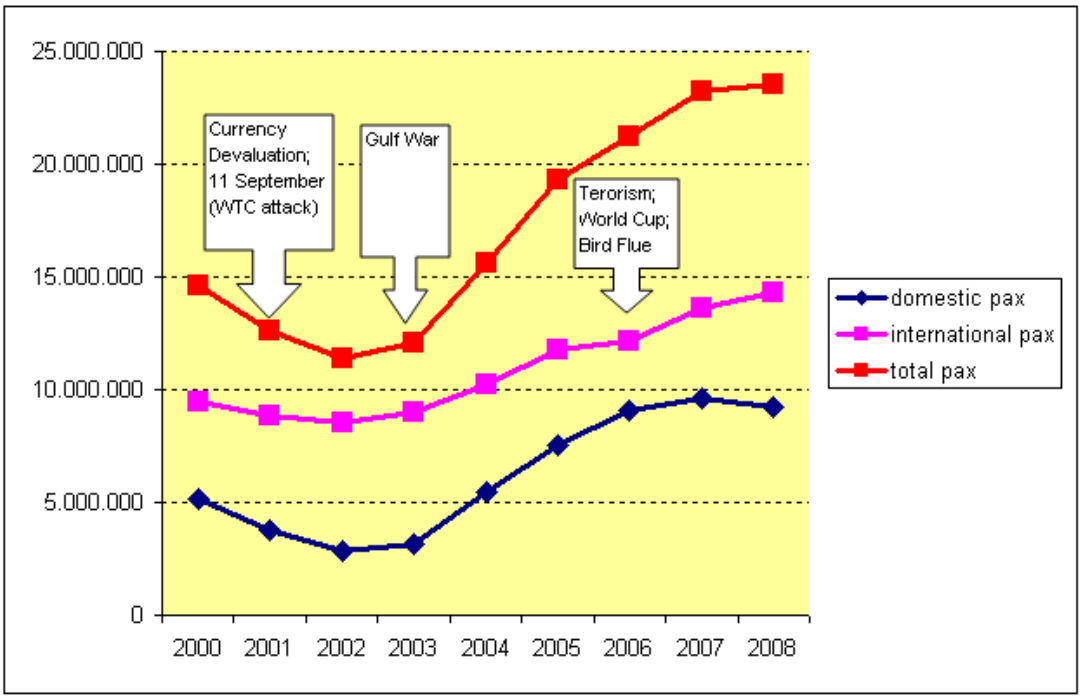
Source: DHMI İstatistik yıllığı 2008, DHMI Genel Müdürlüğü, Alban Tanıtım, 2009

According to the passenger market segmentation, the balance of domestic and international passenger traffic has changed from 35% domestic and 65% international in 2004 to 39% domestic and 61% international in 2008.[21]

Below figure 1. shows the graphical improvement of the passenger data of IST. In this figure, there indicates some slowdown of the passenger growth. In 2001, Turkey experienced currency devaluation as a result of banking crises. In this respect, 2001 was certainly a transitional year for the aviation sector, which had been badly hit by the terrorist attacks of 11 September and the bursting of the internet bubble. Worldwide airlines would soon have to start restructuring quickly, faced not only with an evidently temporary, but often fatal, drop in passenger numbers, but also a drastic review of security standards in airports and on board aircraft. This tightening of standards became even more unavoidable after the SARS epidemic in 2003.[22] Added that, Gulf war started at the dates of 2003. When we come to the year 2006 that the recovery was started to slowdown, there were terrorist attacks, World Cup effect and Bird Flue alerts. To sum up, Istanbul Atatürk Airport has a strong baseline growth but traffic reacts to security related accidents.

[21] DHMI İstatistik yıllığı 2008, DHMI Genel Müdürlüğü, Alban Tanıtım, 2009
[22] Kupfer F., F. Lagneaux, Economic Importance of Air Transport and Airport Activities in Belgium, 2009, National Bank of Belgium, p.9

Figure 1. Historical Traffic at Istanbul Atatürk Airport and Main Reasons of the Slowing Down



Source: DHMI İstatistik yıllığı 2008, DHMI Genel Müdürlüğü, Alban Tanıtım, 2009

3.3.1 Seasonality of International Traffic

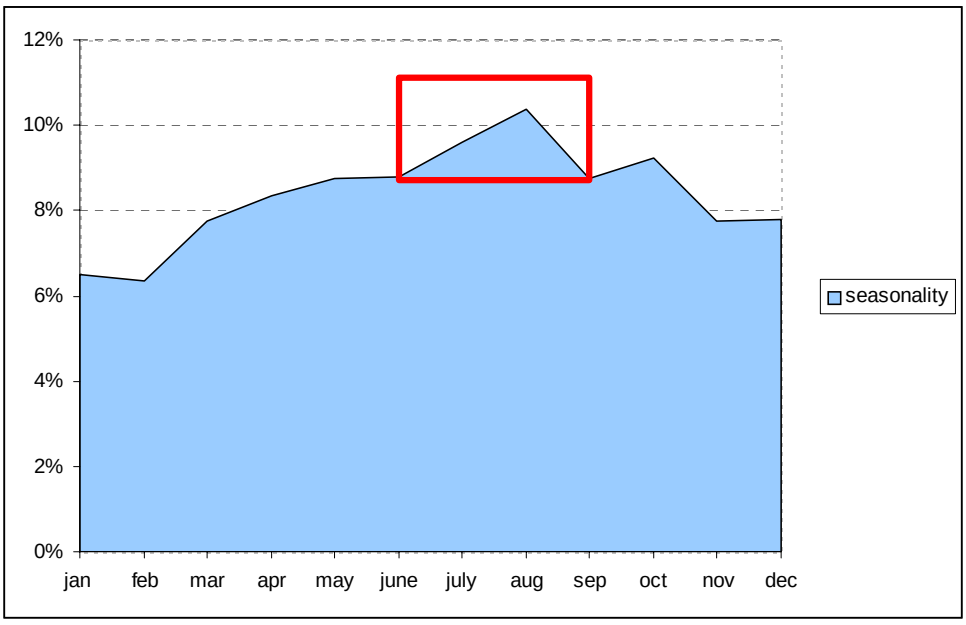
Seasonality of the passenger traffic is important factor while identifying a master plan for terminal operation. When we analyse 2008 international traffic data, May to October is the highest level of international passenger figures experienced. However, it can be said that the passenger flow of every month is distributed nearly the same as other. Another words, any extreme data is seen in the seasonality table of IST.

Table 3.3 Table of Monthly Based International Passengers (included transit passengers) in 2008

2008 ('000)	International Pax	Seasonality
Jan	1.109	6%
Feb	1.083	6%
Mar	1.325	8%
Apr	1.426	8%
May	1.496	9%
Jun	1.498	9%
Jul	1.636	10%
Agu	1.773	10%
Sep	1.496	9%
Oct	1.573	9%
Nov	1.323	8%
Dec	1.331	8%
TOTAL	**17.069**	**100%**

Source: DHMI İstatistik yıllığı 2008, DHMI Genel Müdürlüğü, Alban Tanıtım, 2009

Figure 2. 2008 International Passenger Seasonality



3.3.2 Seasonality of Domestic Traffic

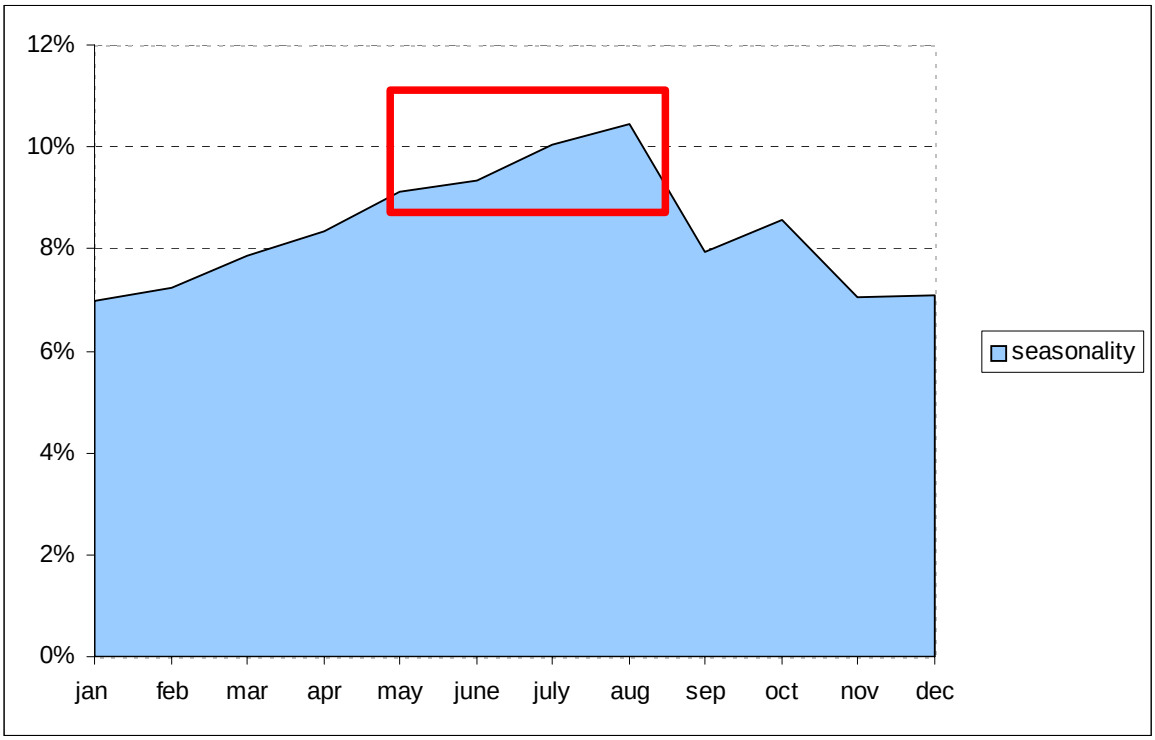
When we analyse 2008 domestic traffic data, May to August is the highest level of domestic passenger figures experienced. In 2008, October was higher than the previous month. However, in 2007, domestic passenger traffic in October was smoothly lower than September. So that, there are some other reasons under the increase of October 2008. When we compare international data with domestic data, domestic data is more sensitive to seasonality.

Table 3.4 Table of Monthly Based Domestic Passengers (included transit passengers) in 2008

2008('000)	Domestic Pax	Seasonality
Jan	800	7%
Feb	833	7%
Mar	903	8%
Apr	958	8%
May	1.045	9%
Jun	1.072	9%
Jul	1.154	10%
Agu	1.202	10%
Sep	913	8%
Oct	983	9%
Nov	811	7%
Dec	812	7%
TOTAL	**11.484**	**100%**

Source: DHMI İstatistik yıllığı 2008, DHMI Genel Müdürlüğü, Alban Tanıtım, 2009

Figure 3. 2008 Domestic Passenger Seasonality



3.3.3 Aircraft Movements

In 2008 IST handled a total of 276,148 aircraft movements. This figure included commercial passenger and cargo aircraft air transport movements (ATMs), non-commercial General Aviation (GA) and military aircraft movements. 254,621 ATM was belonged to commercial type aircraft movement. The distribution of commercial aircraft numbers to the months of 2008 was as follows:

Table 3.5 Table of Aircraft Movements by Segment in 2008

2008 ('000)	Commercial aircraft movements	Seasonality
Jan	18,9	7%
Feb	18,1	7%
Mar	20,1	8%
Apr	21,0	8%
May	22,0	9%
Jun	22,2	9%
Jul	23,6	9%
Agu	24,0	9%
Sep	21,7	9%
Oct	22,1	9%
Nov	20,4	8%
Dec	20,6	8%
TOTAL	254,6	100%

Source: DHMI İstatistik yıllığı 2008, DHMI Genel Müdürlüğü, Alban Tanıtım, 2009

Of the total of civil aircraft movements in 2008, 39% were operated on international services and 61% were operated on domestic services.

3.3.4 Aircraft Movements by Aircraft Type

The Boeing B738 aircraft was the most seen aircraft type operating at IST and accounted for 28.3% of total aircraft movements in 2008. The Airbus A320 was the next most important aircraft type.

The accumulated maximum take-off weight (MTOW) for aircraft types at IST in 2008 and that estimated for ongoing years are as follows:

Table 3.6 Table of Accumulated MTOW in 2008 (including commercial and other types of aircrafts)

Aircraft by MTOW range	2008
0-5 tonnes	11,864
6-10 tonnes	5,700
11-60 tonnes	24,927
61-100 tonnes	205,397
101-175 tonnes	17,327
175+ tonnes	10,933
Total accumulated weight	**276,148**

Source: DHMI İstatistik yıllığı 2008, DHMI Genel Müdürlüğü, Alban Tanıtım, 2009

3.4 CONCESSION FEE

TAV(Tepe-Akfen-Ventures) Havalimanları Terminal İşletmeciliği A.Ş. (TAV Istanbul) founded upon acquiring the concession at a tender to operate the Atatürk Airport International and Domestic Terminal Building Parking Garage and the General Aviation Terminal under a lease agreement. Following the signing of the concession agreement with DHMI on June 16, 2005, for the operation of the Atatürk Airport International and Domestic Terminal Building Parking Garage and the General Aviation Terminal, TAV Istanbul acquired the right to operate the Atatürk Airport International and Domestic Terminal Building as of July 3, 2005 for a period of 15 years and six months. According to the concession agreement with State Airports Authority (DHMI), 3 billion USD (including VAT) is the amount of 15.5 year agreement. 2.5% of total amount of payment has to be paid at date of signing of the agreement, 5.0% is at 5 days

after takeover, 15.5% is at 180 days after takeover, then other 5.5% parts payments have to be paid third of Jan of 2007 to 2020.

As it is said in the payment schedule, in 2005 690.0 Mio USD (584.7 Mio USD Principal + 105.3 Mio USD VAT) has to be paid.

Table 3.7 Table of Lease Payment Schedule of IST (excluding VAT)

Payment Date	Percentage of the payment	Unit	Amount of the Payment
June 2005	2.5%	USD	63,559,322
June 2005	5.0%	USD	127,118,644
Dec 2005	15.5%	USD	394,067,797
Jan 2007	5.5%	USD	139,830,508
Jan 2008	5.5%	USD	139,830,508
Jan 2009	5.5%	USD	139,830,508
Jan 2010	5.5%	USD	139,830,508
Jan 2011	5.5%	USD	139,830,508
Jan 2012	5.5%	USD	139,830,508
Jan 2013	5.5%	USD	139,830,508
Jan 2014	5.5%	USD	139,830,508
Jan 2015	5.5%	USD	139,830,508
Jan 2016	5.5%	USD	139,830,508
Jan 2017	5.5%	USD	139,830,508
Jan 2018	5.5%	USD	139,830,508
Jan 2019	5.5%	USD	139,830,508
Jan 2020	5.5%	USD	139,830,508
Total	**100.0%**	**USD**	**2,542,372,881**

3.5 PASSENGER FORECAST

To see the future improvement of the aviation sector, ACI whose prime purpose is to advance the interests of airports and to promote professional excellence in airport management and operations, publishes every year world outlook report named "Airports economics survey". According to "Airports economics survey" published for 2008, when we come to year 2027, 4.8 billion passengers reached in 2008 expected to double in the next 20 years. This means that the participants in the aviation sector face huge growths at same time must increase their capacity by enlarging terminals, strengthening infrastructure.

According to the same research, 2007 to 2027, Compound annual growth rate (CAGR) of European part of the World will grow 3.4 % every year. At the same time overall World growth will be 4.2 %. To sum up, Turkey will also get its share from this continuing growth of the aviation sector.[23]

Another research related to the passenger forecast is done by Boeing Inc. in 2009. Forecast in this research covers 2008 to 2028 years as shown in the table 3.8. For the traffic to and from Europe forecast CAGR growth is estimated as 3.7%. The report serves that European region is highly diverse economically, and newly developing leisure markets generate rapidly growing traffic flows. The European Union continues to pursue air transport liberalization with countries such as Turkey, Brazil, India and Korea. And, as airlines address markets that are not suitable for highspeed rail, average flight length will increase. European airlines' strategy for environmental responsibility includes replacement of older airplanes with newer models that allow them to lower fuel

[23] TAV Airports Holding, October 2009, Management presentation, p.10

consumption, carry more passengers and fly longer hours using fewer airplanes to accommodate the same amount of traffic.[24]

Table 3.8 Table of Passenger Traffic Forecast of Boeing Inc.

Airline traffic flows
By region

Airline passenger growth rates 2008 to 2028

RPKs	Africa	Latin America	Middle East	Europe	North America	Asia Pacific
Asia Pacific	9.2%	9.1%	6.3%	5.5%	4.9%	**6.9%**
North America	7.4%	4.7%	6.9%	4.6%	**2.5%**	
Europe	5.4%	4.3%	5.5%	**3.4%**		
Middle East	6.1%	–	**6.2%**			
Latin America	5.5%	**6.4%**				
Africa	**6.4%**					

Source: Boeing Commercial Airplanes, Current Market Outlook 2008 – 2028, 2009

Turkish tourism industry has reported remarkable growth over the past few years. Turkey is becoming popular on various segments of tourism e.g. health, culture, winter, golf, yacht tourism.

The tourism sector is closely related to aviation, hospitality, transportation and other industries. With the growing of tourism sector, aviation sector in Turkey is expected to witness the tie-ups between the domestic players and foreign carriers.

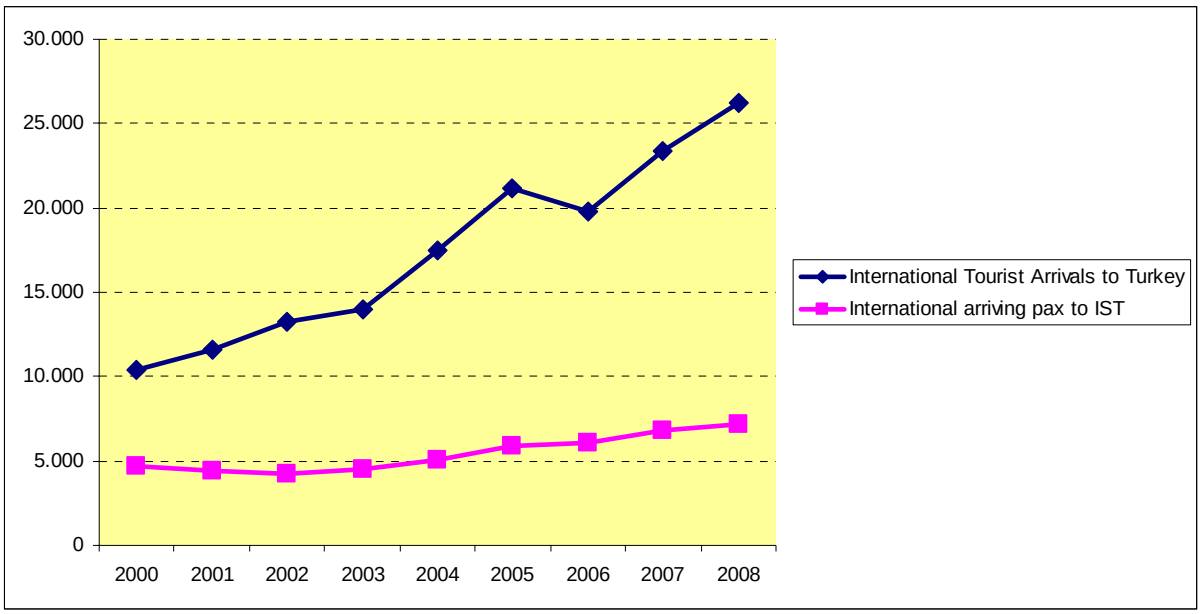
[24] Boeing Commercial Airplanes, Current Market Outlook 2008 – 2028, 2009, p.16

According the database of Ministry of Culture and Tourism, the number of tourists visiting Turkey increased more than 17-fold in the past three decades, from 1.5 Million in 1979 to a record 26.2 Million in 2008. In 2008, 32.5% of the total tourists entered the country via Antalya whereas 26.8% visitors entered country via Istanbul.

Airlines serve as the main means of transport to visit Turkey. 18.2 Million visitors visited Turkey via air in 2008. This makes 72% share of air. In 2007 16.2 Million visitors use airway which gives around 70% share to airway. It means that airway also increase its share in the total ways of transportation.

According to the World Travel and Tourism Council (WTTC) report, total international visitors coming to Turkey will 2.4% decrease in 2009 compared to 2008. However it is estimated as 41 million international visitors will come to Turkey at the year of 2020. This makes a 4.4% CAGR growth rate between 2009 and 2020. The WTTC report refers to Turkey but has a significant relevance to Istanbul as 26.8% visitors entered country via Istanbul in 2008. The growth trends showed similarities in terms of declines and recoveries. And the correlation coefficient of these two series is 0.95, meaning that positively correlated. Therefore the WTTC forecast for the growth of total visitors to Turkey can be applied to Istanbul traffic as well.

Figure 4. Relation Between International Arriving and Tourist Arrivals to Turkey



Source: Ministry of Culture and Tourism

3.5.1 Advantages of Turkey in Air Transportation

Turkey is a fast growing market due to the following statistics reached in the past data.

- 5.9% average GDP growth between 2002 and 2008

- According to the "Ministry of Culture and Tourism" in 2008 foreign visitors amounted 26.2 million (tourism approximately 5% of GDP)

- According to the "TURKSTAT" Turkey is the 2nd largest country in Europe in terms of population (71 million)

- Current passport holders represent small part of the Turkish population, while 50 million are under the age of 30

- Limited alternative transport infrastructure

- According to the "DHMI" from 1991 to 2008, the annual Turkish passenger growth rate was 11.5% per year, despite events such as the wars in Iraq, earthquakes, terrorist attacks and economic crisis

- According to the "IATA" survey put forward at the date of October 2007, Turkey is estimated to post 7.5% passenger growth between 2007 and 2011[25]

In 2008, international flight passenger traffic reached 41 million. Domestic flight passenger traffic reached 34 million, with an annual average increase of 30% in the last five years. Turkey's connection to major markets such as the CIS, the Middle East and North Africa means that 1.5 billion consumers can be easily reached. Important reductions in airline costs and price levels were made possible to reach higher degrees of passengers. Accordingly six firms started domestic operation in the last few years to meet the increasing demand for air travel. Turkey has a pivotal role in connecting Pan-European transport corridors to Central Asia. Additionally, the Mediterranean basin, to which Turkey is a natural conduit, has gained greater prominence in both East-West and North-South connections.[26]

[25] TAV Airports Holding, October 2009, Management presentation, p.11
[26] Republic of Turkey Prime Ministry Investment Support and Promotion Agency, Investors' Guide For Turkey, 2008, p38

3.5.2 Domestic Passenger Growth

Since 2004 there has been very strong growth in the number of domestic passengers at IST due mainly to the opportunities offered by liberalisation of the Turkish aviation sector.

This extraordinary growth would probably not have been predicted using econometrics alone. The significant improvements in Turkey's macroeconomic performance since 2003 have further stimulated domestic passenger traffic.

The rates of growth in domestic passengers seen at Istanbul Atatürk Airport in 2004 (74%), 2005 (38%) and 2006 (21%) are sustainable. And, it is estimated that the growth of domestic traffic will continue. Due to the fact that the dominance of Istanbul as a domestic destination in domestic traffic is an ongoing issue for leading years. Most of the flight traffic in Turkey passes from Istanbul.

Table 3.9 Table of Domestic Passenger Traffic Data with Growth rates

(000s)	2004	2005	2006	2007	2008	2004-2008 CAGR
Domestic Passengers	5.431	7.512	9.092	9.596	9.213	
Domestic Passenger Growth	74%	38%	21%	6%	-4%	31%
GDP Growth (%)	9%	8%	7%	5%	1%	8%

Table 3.10 Table of Forecasted GDP Growth Rate of Turkey up to 2014 by IMF

	2009	2010	2011	2012	2013	2014	2009-2014 CAGR
GDP Growth (%)	-5,0%	5,3%	5,5%	5,3%	5,5%	5,5%	4,3%

Source: IMF World Economic Outlook, 2009

Above table is related to the GDP forecast of International Monetary Foundation (IMF). This forecast is a positive look to one of the most important key indicator of Turkey. The result is 4.3% compound rate growth on yearly base. The forecast of domestic passenger is based on the growth of GDP and historic growth traffic data.

So that, base scenario case is adopted with considering the past data and GDP forecast of Turkey.

Table 3.11 Table of Forecasted Domestic Passenger Traffic

DOM passenger growth (%)	2009	2010-2014	2015	2016-2021	2009-2021 CAGR
Base case	0,0%	4,3%	-3,0%	3,0%	3,0%

Year 2015 is chosen to be the crises year. Base case takes the reference of GDP growth rate forecast of IMF. That's because, casual regression modelling for aviation demand is not the case of thesis, a smooth increasing percentage is chosen. The aim of the base case is that at the end of the year 2021 the CAGR is 3% as it is near the 2008

to 2028 forecast of Boeing Inc which they estimated the Europe total traffic to be 3,7% annual growth.

3.5.3 International Passenger Growth

International traffic forecast to the IST is based on 2009 – 2020 forecast of WTTC. Below table shows the yearly increase rate of the total international passenger visiting Turkey.

Table 3.12 Table of Forecasted Total International Visitors to Turkey by WTTC

INT passenger growth (%) - Turkey	2009	2010-2014	2015	2016-2020	2009-2020 CAGR
WTTC forecast	-2,4%	6,8%	3,0%	3,0%	4,4%

Source: World Travel & Tourism Council, Country Reports, Turkey, 2009

International passengers' nationality of past data indicates that IST serves mostly to passengers that have Turkish nationality in international terminal. This corresponds to 57 % of all passengers in 2007. Each of German and Russian nationality took shares of 7 % in 2007. Following nationalities were French, British, Dutch and Italian that took the share of 2 % separately.

Table 3.13 Table of Nationality of Total International Passengers of IST Between the Years of 2005 to 2007

	2005	2006	2007
Turkish	6.757.055	7.065.907	7.517.397
French	232.766	243.959	262.251
German	687.190	689.996	944.099
Russian	884.204	787.796	911.793
British	264.318	257.403	215.396
Dutch	246.170	221.112	213.974
Italian	282.838	248.031	240.517
Others	2.426.946	2.660.077	2.994.879
Total	**11.781.487**	**12.174.281**	**13.300.306**

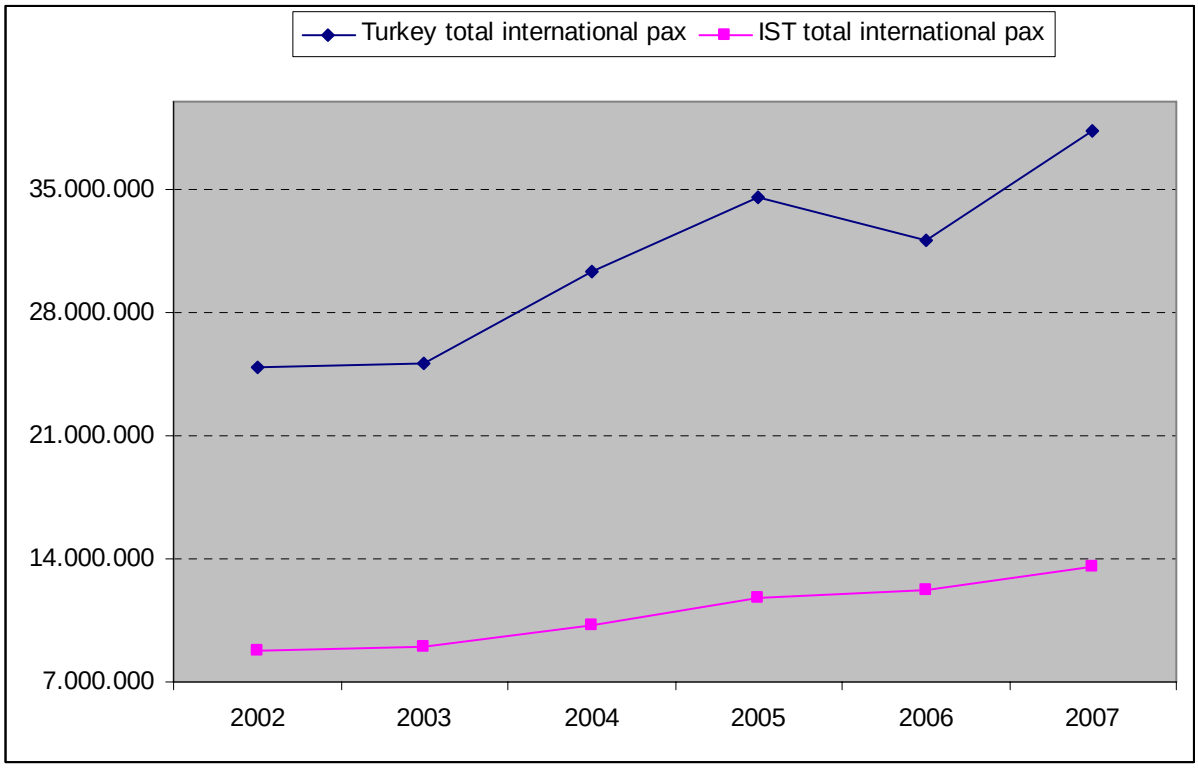
Source: DHMI İstatistik yıllığı 2008, DHMI Genel Müdürlüğü, Alban Tanıtım, 2009

If we analyse the percentage change of each nationality, Turkish, French and other categorized nationalities increase in both years. Year 2006 can also be named as crises year for Turkish international aviation due to bird flue and world cup organization in Germany.

Table 3.14 Table of Percentage Change of Nationality of Total International Passengers of IST

	2006	2007
Turkey	5%	6%
France	5%	7%
Germany	0%	37%
Russian	-11%	16%
Great britain	-3%	-16%
Netherlands	-10%	-3%
Italy	-12%	-3%
Total	**3%**	**9%**

Figure 5. Relation Between International Total Pax and Turkey International Total Pax



Source: DHMI İstatistik yıllığı 2008, DHMI Genel Müdürlüğü, Alban Tanıtım, 2009

As it is shown in the figure above, international passenger increased steadily for IST. 2004 to 2008 the compound growth reached to 12% annually.

According to the ICAO which is a major agency of the United Nations, although growth in world air travel has been greater than global economic growth, analytical studies indicate that there is a significant correlation between GDP and air traffic. Airline passenger demand may therefore be considered as directly related to the state of the worldwide economy, meaning that step changes in the price of fuel impacted both GDP growth and airline ticket prices. Higher food and fuel prices have also had

serious macro economic effects throughout the global economy, including adverse effects on growth and inflation, and large swings in terms of trade levels. Most aviation forecasts are based on the premise that air transport demand is determined primarily by economic development and to a lesser extent by seat prices and other factors.

So in order not to go out of the scope of thesis, the increasing rates of international passenger changes are projected according to historical passenger data and IMF forecasted GDP data of each nation take part in the nationality table of IST.

Table 3.15 Table of International Passenger Traffic Data with Growth Rates

(000s)	2004	2005	2006	2007	2008	2004-2008 CAGR
International Passengers	10.170	11.781	12.174	13.300	14.316	
International Passenger Growth	13%	16%	3%	9%	8%	12%
GDP Growth (%) - Turkey	9%	8%	7%	5%	1%	8%
GDP Growth (%) - France	2%	2%	2%	2%	0%	2%
GDP Growth (%) - Germany	1%	1%	3%	3%	1%	2%
GDP Growth (%) - Russian	7%	6%	8%	8%	6%	9%
GDP Growth (%) - United Kingdom	3%	2%	3%	3%	1%	3%
GDP Growth (%) - Netherlands	2%	2%	3%	4%	2%	3%
GDP Growth (%) - Italy	2%	1%	2%	2%	-1%	0%

Table 3.16 Table of Forecasted GDP Growth Rate of Various Countries up to 2014 by IMF

	2009	2010	2011	2012	2013	2014	2009-2014 CAGR
GDP Growth (%) - Turkey	-5%	5%	5%	5%	6%	6%	4%
GDP Growth (%) - France	-2%	1%	2%	2%	2%	2%	1%
GDP Growth (%) - Germany	-5%	0%	1%	2%	2%	2%	0%
GDP Growth (%) - Russian	-8%	2%	3%	4%	4%	5%	2%
GDP Growth (%) - United Kingdom	-4%	1%	2%	3%	3%	3%	1%
GDP Growth (%) - Netherlands	-4%	1%	1%	2%	2%	3%	1%
GDP Growth (%) - Italy	-5%	0%	1%	1%	2%	2%	0%

Source: IMF World Economic Outlook, 2009

Nationality data and projected GDP growth rates of countries are used in the case of base scenario international passenger forecast. According to the forecast, 2015 is the crisis year. The result of forecast is that the total international passenger compound growth rate is 3.7 % for base case.

Table 3.17 Forecasted International Passenger Traffic (Base Scenario)

BASE CASE					
INT passenger growth (%)	2009	2010-2014	2015	2016-2021	2009-2021 CAGR
Turkish	0,0%	5,0%	-2,0%	4,0%	3,9%
French	0,0%	6,0%	-2,0%	3,0%	3,8%
German	0,0%	1,0%	-1,0%	1,0%	0,8%
Russian	0,0%	5,0%	-7,0%	4,0%	3,4%
British	0,0%	-4,0%	-4,0%	-1,0%	-2,5%
Dutch	0,0%	-4,0%	-4,0%	-1,0%	-2,5%
Italian	0,0%	-4,0%	-4,0%	-1,0%	-2,5%
Others	0,0%	6,0%	-1,0%	5,0%	4,9%
Total	0,0%	5,8%	-2,1%	4,7%	3,7%

3.6 ECONOMIC ASSUMPTIONS

In a project finance modelling, there needs to make assumptions of economic indicators such as foreign exchange rates, inflation.

Modelling of IST terminal operator concession, economic indicators play important roles. The reason of the critical role is that most of the cash flow is denominated in USD which is the result of passenger fee revenues. TRY and EUR based cash flows are also play important role in management.

As the thesis is chosen parallel with the reality case of TAV concession of IST at the date of June 2005, in order to be parallel also in functional currency, EUR is accepted as functional currency.

Therefore, the identification of currency rates is important in this project finance model. Up to 2009 November, inflation and foreign exchange rates that were realised, are used in the modelling. Concession years of 2010 to 2021 rates are made according to some assumptions.

1.45 EUR/USD parity is used in the model at the end of 2010 based on the faster economic recovery of EURO Zone compared to United States. According to the IMF World Economic Outlook Database average GDP growth for United States and EURO zone are forecasted as 3-4% and 0-1 % respectively. Leading years figures precede 2010 with slightly up and downs, except for the 2015. At the year of 2015 parity is forecasted as 6 % higher than previous year.

2.26 EUR/TRY FX rate is the forecast at the end of 2010 for project finance model. The drive behind this forecast is that TRY will likely to strengthen versus the EUR in the medium term in step with the economic recovery and improving global and financial conditions. As in the parity projection, leading years figures precede 2010 with slightly up and downs, except for the 2015. At the year of 2015 parity is forecasted as 6 % higher than previous year.

Most of the parameters in the project finance model are affected by the Turkish consumer price index (CPI), namely inflation. IMF World Economic Outlook Database is used for the forecast of inflation. For 2009 inflation rate is expected to be 5.8 % and the following years until 2015 are 6.3%, 5.4%, 4.0%, 4.0% and 4.0% respectively. For 2015, 7.0% is taken as inflation rate and the remaining years will have the trend of 2009 to 2014 period.

3.7 OPERATING REVENUES

Determination of operating revenues is one of the crucial parts of modelling. The amount of revenue is directly related to the cash inflow of the company so as to the profitability of the project. These are estimates of the likely receipts in cash terms between 2005 and 2021, concession period. The revenues in the profit and loss statement are then used in producing a cashflow forecast allows you to demonstrate that you have thought through the flows of cash (not funds or profit).

3.7.1 Aviation Revenue

3.7.1.1 Passenger Fee

Passenger fee is the main revenue item of terminal operator. It is received according to the DHMI tariffs. This tariff contains the charges for the use of airport facilities and services given to passengers when they are leaving or travelling in Turkey. For the international terminal 15 USD per departing passenger, for the domestic terminal 3 EUR per departing passenger are the DHMI tariffs. According to the article, the amounts less than 100.-TRY will be invoiced by adding VAT and the amount of 100.-TRY and above will be free of VAT.[27]

As a result of this revenue type, Project Company has USD and EUR type of revenue. And this makes currency risk for the company.

3.7.1.2 Counter Revenues

This type of revenue is also subject to DHMI tariff. According to the article, for domestic and international terminal, temporary allocation is 6 TRY, permanent allocation that covers 30 flights every allocation is 205 TRY. To calculate this revenue item, there makes some assumptions. It is assumed that on the average basis, 20 departing international passengers will use a check-in counter in one hour, while 60 departing domestic passengers will use a check-in counter in one hour. The reason of this distinction is that the check-in processes differs. In the article, it is added that VAT is included in the charges.

[27] DHMI tariff booklet, 2009, p.59

3.7.1.3 Aircraft Parking Revenues

This type of revenue is also subject to DHMI tariff. 2009 International terminal service DHMI tariff as follows;

Table 3.18 Table of International Terminal Service Tariff in 2009

International Terminal Service Tariff :

	Max. Flight weight of A/C (Kg) A	Bridge (Hr) B	400 Hz Electric (Hr) C	Water (Per flight) D	PCA (Hr) E
		EURO	EURO	EURO	EURO
1	0- 50,000	60	66	12	24
2	50,001- 75,000	80	66	12	24
3	75,001- 106,000	102	66	12	24
4	106,001- 152,000	132	66	12	36
5	152,001- 192,000	180	66	18	36
6	192,001- 212,000	204	66	18	52
7	212,001- 300,000	226	66	18	52
8	300,001- up	254	66	18	52

Source: DHMI Havaalanları Ücret Tarifeleri, DHMI Genel Müdürlüğü, 2009

2008 International terminal service DHMI tariff as follows;

Table 3.19 Table of International Terminal Service Tariff in 2008

International Terminal Service Tariff :

	Max. Flight weight of A/C (Kg) A	Bridge (Hr) B EURO	400 Hz Electric (Hr) C EURO	Water (Per flight) D EURO	PCA (Hr) E EURO
1	0- 50,000	75	82.5	15	24
2	50,001- 75,000	100	82.5	15	24
3	75,001- 106,000	127.5	82.5	15	24
4	106,001- 152,000	165	82.5	15	36
5	152,001- 192,000	225	82.5	22.5	36
6	192,001- 212,000	255	82.5	22.5	52
7	212,001- 300,000	282.5	82.5	22.5	52
8	300,001- up	317.5	82.5	22.5	52

Source: DHMI Havaalanları Ücret Tarifeleri, DHMI Genel Müdürlüğü, 2008

This tariff contains the charges for the terminal services presented to an aircraft docking to the bridge at the terminal buildings and the airports operated by DHMI. In the article it is said that the amounts less than 100.-TRY will be invoiced by adding VAT and the amount of 100.-TRY and above will be free of VAT.[28] For the domestic terminal load bridge and 400 Hz electricity tariff is half of the international tariff.

2008 aircraft data of IST indicates that 74 % of aircrafts are 61,000 to 100,000 kg weight. So that in the tariff table, most of the aircrafts flight to IST fits in the second and third place in terms of MTOW classification. For 2009 international terminal, when we used the 2009 tariffs and take the 2008 weights of aircrafts, average unit price is to be 107 EUR. For 2008 and the previous years of concession period, the result of the same method is 134 EUR. For domestic terminal tariff, international tariff is divided by two. It is assumed that 1.25 hour is the average time of aircrafts taking terminal services. As because the number of the bridges are different in both terminals, it is

[28] DHMI tariff booklet, 2009, p.60

assumed that in international terminal 60 % of all aircrafts are docked to the bridge, while in domestic terminal 40 % of all aircrafts are docked to the bridge.

400 Hz electricity revenue, water and PCA revenues are having smaller shares in aircraft parking revenues. They are assumed according to tariff.

Table 3.20 Table of Projected Cash Inflows of Aviation Revenue

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Aviation revenues	383.988	100.824	604.171	127.910	730.587	1.947.481
Passenger revenues	319.138	86.665	544.853	115.327	661.593	1.727.577
international terminal	270.401	72.594	464.888	98.481	568.049	1.449.467
domestic terminal	48.737	14.070	79.965	16.846	93.544	24.947
A/c parking revenues	64.850	14.160	59.318	12.583	68.993	219.904
international terminal	50.084	10.947	40.128	8.368	44.348	153.875
domestic terminal	14.766	3.213	19.190	4.215	24.645	66.029

3.7.2 Real Estate Revenue

This revenue item is divided to three sub categories. These categories are rental, parking and utilities revenues.

3.7.2.1 Rental Revenues

Rental revenues are related with the offices rented to the tenants and the common expenses charged to those tenants. Rental revenues are partially regulated by DHMI tariff for office rent and common charges. In the tariff article, tariff per square

meter for the offices of airline firms and the offices of other firms serving for aviation sector is settled. According to the area allocation article of the tariff, it is stated that 20 % of the rent is charged to tenants due to the usage of common places. Airport operator provides security, cleaning, lightening, heating and cooling to the every square meter of terminal. So that DHMI settled common charge share paid to the operator of the terminal in the tariff article.

In the article, the tariff related to stand desk are also issued. In some periods of time, stand desk are used for advertising, tourism by the customers.

In addition to the offices, rent a car offices are play important role for a terminal. For instance, 90 commercial units which are composed of gift shops to various services in international terminal of IST according to DHMI. 17 of these units are rent a car offices. In domestic terminal, there are 9 units of rent a car offices.

Revenues from Bank ATMs are classified under rental revenues. In international terminal there are 8 ATMs, however in domestic terminal there are 10 ATMs. There are also branches of three national banks with 4 currency exchange bureaus in international terminal.

Usage of the past data is the method for the project finance modelling of cash flows in estimating rental income or another saying area allocation income. In the auditor's report of TAV Airports Holding in 31.12.2008, area allocation income is 16,908,681 EUR for the year of 2008. The model of the thesis is based on the realized figures.

In the project finance modelling, 0.9 EUR including VAT per arriving international passengers is assumed as unit price in calculating the income from banks and exchange offices in international terminal. Other assumptions are for bank ATMs. Project Company will get 2,000 EUR in a month per ATM. Following years are increased by inflation rate of EUR zone. The reason of the increase in EUR inflation is that currency denominated in EUR is used for planning. If any revenue item planned in TRY, inflation rate of Turkey is the base increasing rate. Other assumption is related to the offices of airlines, duty free operator firm, food and beverage operator firm and other firms. It is assumed that the rent office revenues are around 200,000 EUR in a month for international, 100,000 EUR in a month for domestic.

According to the assumptions cash inflow is shown in the table.

Table 3.21 Table of Projected Cash Inflows of Rental Revenue

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Rental Revenues	45.393	13.568	75.285	16.242	87.646	238.135
Rent revenue - INT	10.599	3.014	15.703	3.300	17.672	50.287
Rent revenue - DOM	5.808	1.951	10.176	2.135	11.418	31.489
Concession revenue FX/B - Exchange office	18.517	5.342	31.733	6.933	40.516	103.040
Common charges - INT	8.820	2.644	13.994	3.044	13.760	42.262
Common charges - DOM	1.650	617	3.679	830	4.280	11.057

In 2009, 25 % of rental revenues are common charge revenues. As in stated in the area allocation part of article, 20 % of offices rent is charged to tenants. This recorded as common charges revenue for the terminal operator. Common charge revenue is also taken from duty free and f&b subleasor. The method for subleasors is different than office tenants. Total cost of security personnel expenses, cleaning expenses and energy expenses are totalled to find unit cost per square meter. Duty free subleasor has 5,336 square meters in international terminal. Unit cost is multiplied by

total square meters of the duty free shops so to find common charge revenue. In addition, common charge revenue from food and beverage units is in the same way as duty free. For the food and beverage, 11 units in domestic terminal, 34 units in international terminal. To calculate common charge revenue, 250 square meters is assumed per food and beverage unit. Finally, for bank and exchange office common charge, 5 % of the concession under rental revenues is assumed to calculate common charge revenue.

Common cost per square meter is calculated as follows;

Table 3.22 Table of Total Expenses Related to Common Charge

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Total expenses related to common usage	132.791	40.154	228.268	50.086	299.352	750.650
Total Security personnel cost	66.273	18.689	108.473	23.775	141.813	359.022
Cleaning	22.197	5.951	34.051	7.507	44.723	114.430
Electricity	41.010	14.693	80.991	17.762	106.383	260.838
Heating	3.311	821	4.753	1.042	6.433	16.360
Total square meter of the teminals	331	331	331	331	331	331
Monthly cost per square meter	9,6	10,1	11,5	12,6	14,8	

3.7.2.2 Utility Revenues

Utility revenues are another type of rental revenues. Revenue item is related to the consumption of the tenants such as electricity, water, waste water treatment, heating / cooling. Addition to consumption of tenants, medical services given to the personnel of terminal is invoiced to the tenants. Consumptions of electricity, water, waste water are multiplied by sales unit price that constitutes the biggest part of the utility revenues. Heating / cooling system in terminal is central based. Due to the fact that unit price of heating / cooling is multiplied by the cubic meter of the offices.

Table 3.23 Table of Projected Cash Inflows of Utility Revenue

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Utility Revenues	5.769	2.007	10.812	2.303	15.972	36.863
Electricity rev	3.303	1.217	6.822	1.489	10.856	23.686
Water + waste water rev	594	135	658	128	756	2.272
heating/cooling rev	1.507	454	2.301	470	2.971	7.702
heatlhcare rev	365	200	1.031	217	1.390	3.204

3.7.2.3 Parking Lot Revenues

Parking lot is the largest real estate revenue based on TRY. Similar to some of the aviation revenues, parking lot tariff is also regulated by DHMI. If the tariff in the terminal is above the DHMI tariff set in article, the difference is paid to DHMI. In IST, up to 1 hour, 7.25 TRY is the car park fee. One to three hours time 9.5 TRY, three to six hours time 14.5 TRY, six to twelve hours time 17.5 TRY, twelve to twenty four hours time 23.5 TRY are the fees of car parking in terminal.

Parking lot revenue is calculated referred to auditor's report of TAV Airports Holding in 31.12.2008. According to the report consolidated parking lot revenues are 21,493,597 EUR for the year of 2008. TAV Airports Holding consolidated total number of passengers are 35.9 million. Due to Istanbul Atatürk Airports 23.5 million passengers share in 2008, the parking revenue item makes around 14 million EUR comparatively. Due to this calculation, 2.27 TRY per arriving passenger is the unit price in 2008.

Table 3.24 Table of Projected Cash Inflows of Parking Lot Revenue

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Parking Lot Revenues	52.570	13.524	90.995	21.359	144.914	323.363
Parkinglot - INT	24.864	8.119	55.659	13.236	91.676	193.553
Parkinglot - DOM	27.706	5.405	35.337	8.123	53.238	129.809

To summarize the amount of real estate revenues, parking lot revenues increase with the increase in the number of passenger. However, rent offices income is increase only by the rent per square meter. For instance, in 2009, parking lot revenue share is 46 % of real estate revenue. In the last five year period, the share increased to 58 %.

Table 3.25 Table of Projected Cash Inflows of Real Estate Revenue

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Real Estate Revenues	103.827	29.099	177.093	39.905	248.532	598.457
Rental Revenues	45.489	13.568	75.285	16.242	87.646	238.231
Utility Revenues	5.769	2.007	10.812	2.303	15.972	36.863
Parking Lot Revenues	52.570	13.524	90.995	21.359	144.914	323.363

3.7.3 Retail Revenue

Major retail revenues are shopping revenues (Duty Free, F&B, Land side retail), advertising revenues and service revenues (Baggage wrapping, CIP Lounge).

3.7.3.1 Shopping Revenues – Duty Free

Duty Free is the largest revenue item in retail revenues. This concession revenue is based on revenue sharing between the Project Company and the duty free (DF) concessionaire. Sales of Duty Free are in EUR, so are the earnings of the Company accordingly. To say other words, duty free is operated by sublease firm. Competitive concession fee (43%) paid to Project Company for Duty Free shops in IST. Concession fee used in the modelling process is the realized concession fee of IST in actual for the year of 2008. What concession fee tells about that project company will get 43 % of all turnover of duty free subleasor firm.

In airport terminal operator business, duty free per pax spending is the key factor to define duty free revenues. Duty free per pax spending amount is used to compare all airports worldwide. This amount indicates spending per passenger. The layout of shops and nationalities of passengers play important role in determining of duty free per pax spending of the terminal. In the modelling, past amounts are used. For instance, TAV airports realized DF PPS for Istanbul Atatürk Airport from 2005 to 2008 are 14.8, 16.0, 16.0 and 16.5 respectively.

DF turnover of the sublease firm is calculated from multiplying DF PPS by total international passengers. Project Company get share from the DF turnover of sublease firm. In IST case, 43 % is used in modelling as in the real case of TAV Airports Holding's concession in IST.

For project finance modelling, the realized figures of DF PPS are used for 2005 to 2008 years. Following years are assumed as the average of these four years. So as to 15.8 is the base DF per pax spending for the following years.

3.7.3.2 Shopping Revenues – Food and Beverage

Food and beverage (F&B) is the second largest retail revenue item. The company is a variable rent based on a fixed percentage of all net sales of the concessionaire with sublease firm. Food and Beverage revenue is generated both in domestic and international terminal.

Food and Beverage is operated by sublease firm. Competitive concession fee (40%) paid to Project Company for Food and Beverage shops in IST. Concession fee used in the modelling process is the realized concession fee of IST in actual for the year of 2008.

F&B turnover of the sublease firm is calculated from multiplying F&B PPS by total international and domestic passengers. Project Company get share from the F&B turnover of sublease firm. In IST case, 40 % is used in modelling as in the real case of TAV Airports Holding's concession in IST.

In IST, there are 11 F&B units in domestic terminal while 4 units in international terminal arrival hall, 30 units in international terminal departure hall.

In airport terminal operator business, as in duty free per pax spending, food and beverage per pax spending is the key factor to define food and beverage revenues. F&B per pax spending amount is used to compare all airports worldwide. This amount indicates spending per passenger. In the modelling, past amounts are used. TAV airports realized DF PPS for Istanbul Atatürk Airport from 2005 to 2008 are 1.9, 2.4, 1.8 and 2.0 respectively. It is noted that for 2007 and 2008, PPS figures include the consolidated firms of TAV Airports Holding.

For project finance modelling, the realized figures of F&B PPS are used for 2005 to 2008 years. Following years are assumed as the average of these four years. So as to 2.1 is the base F&B per pax spending for the following years.

3.7.3.3 Shopping Revenues – Land side retail

Land side retail concept covers shopping kiosks, gift shops etc. In IST, there are 5 land side retail units in domestic terminal while 3 units in international terminal arrival hall, 13 units in international terminal departure hall.

There is a range of assumption in finding the projected land side retail revenue. For international terminal, 0.02 per pax is determined to be guaranteed revenue for all land side retail units. However, in domestic terminal fixed rent is chosen as land side retail revenue.

The summary of the shopping revenues are stated in the table 3.26.

Table 3.26 Table of Projected Cash Inflows of Shopping Revenue

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Shopping Revenues Revenues	408,807	124,398	713,502	146,842	885,429	2,278,978
Concession DF - INT	335,733	102,354	583,830	119,744	725,438	1,867,100
Concession F&B - INT	39,843	11,749	70,039	14,873	89,328	225,832
Concession F&B - DOM	26,805	7,592	43,920	8,825	51,078	138,220
Concession LSR - INT	5,344	2,336	13,878	3,032	17,720	42,310
Concession LSR - DOM	1,082	367	1,835	367	1,865	5,516

3.7.3.4 Advertising revenues

Advertising revenue is not regulated by DHMI. Nevertheless DHMI regulates available advertising spaces. This means that when you create new advertising areas, within a ratio, project company share revenue from new advertising area with DHMI.

Advertising revenues is calculated referred to auditor's report of TAV Airports Holding in 31.12.2008. According to the report consolidated advertising revenues are 8,884,410 EUR for the year of 2008. The distribution of revenues between domestic and international is determined by the percentage of passenger that terminal served in a year.

Table 3.27 Table of Projected Cash Inflows of Advertising Revenue

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Advertising Revenues	19.920	6.012	33.688	6.769	34.691	101.079
Rent revenue ADV - INT	11.700	3.607	19.852	3.989	20.443	59.590
Rent revenue ADV - DOM	8.220	2.405	13.836	2.780	14.248	41.489

3.7.3.5 Service revenues

There are two revenue generating units in the category of service revenues. One is baggage wrapping revenue and the other is CIP lounge revenue.

Luggage wrapping machines are situated at departure halls of both domestic and international terminals to allow passengers who wish to protect their baggage with stretch film. This service is available 24 hours a day. Two luggage wrapping units are in international departures while on luggage wrapping unit is in domestic departures.

Baggage wrapping revenue is strongly related to CIS nationality passengers and baggage wrapping service is operated by third party. Projection is based on 60 % revenue sharing of Project Company and 7 USD including VAT revenue per baggage wrapped. It is assumed that 2 % of international departing passengers use baggage wrapping service. In addition to that 0.5 % of domestic departing passengers use baggage wrapping service.

CIP lounge services are for privileged passengers. In IST, there various CIP lounge services stated below:

Primeclass lounge: It is a part of the TAV 'primeclass' CIP service, with world class comfort in a modern lounge, where guests feel special and privileged.

Turkish Airlines Lounge: Welcomes passengers flying with THY.

British Airways Lounge: Offers exquisite lounge services for British Airways passengers.

Millennium Lounge: Offers world class services for the First Class and Business Class passengers of contracted airlines.

Advantage Lounge: Lounge service offered for Advantage Card holders.

Wings 'primeclass' International Lounge: Holders of various cards issued by Akbank as well as 'primeclass' passengers can enjoy all services offered in this lounge.

Garanti Zone Lounge: Holders of various cards issued by Garanti Bank can enjoy all services offered in this lounge.

CIP lounge revenues are calculated referred to auditor's report of TAV Airports Holding in 31.12.2008. According to the report consolidated CIP lounge revenues are 16,458,181 EUR for the year of 2008. The distribution of revenues between domestic and international is determined by the percentage of passenger that terminal served in a year.

In the project finance modelling, fix and variable charges used for CIP lounge revenues in a hypothetical manner. As there are six firms that give CIP lounge service to their privileged customers, each are assumed to give 125,000 USD fix charge. This charge covers the number of passengers that use the service. If agreed number of passengers exceed, 120 USD per exceeding passenger is charged by Project Company. These assumptions are made hypothetically.

For domestic terminal, it is assumed that 40 TRY including VAT is charged to service providers. And it guessed that for 2008, 5 % of departing domestic passenger will use lounge services.

Table 3.28 Table of Projected Cash Inflows of Service Revenue

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Service Revenues	23.737	9.460	49.618	9.666	48.709	141.189
Concession rev bag. wrap - INT	1.227	350	2.203	465	2.669	6.915
Concession rev bag. wrap - DOM	211	53	323	66	361	1.015
CIP revenues - INT CIP Lounge	13.363	5.478	29.687	5.768	28.861	83.157
CIP revenues - DOM CIP Lounge	8.935	3.580	17.404	3.366	16.817	50.102

The summary of retail revenues bearing shopping, advertising and service revenues are stated below. As it is seen in the table, with the increase of number of international passengers and per pax spending, the share of shopping revenues increase more than other retail revenues.

Table 3.29 Table of Projected Cash Inflows of Retail Revenue

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Retail Revenues	452.463	139.870	858.032	194.472	1.181.795	2.826.634
Shopping Revenues Revenues	408.807	124.398	774.726	178.038	1.098.396	2.584.365
Advertising Revenues	19.920	6.012	33.688	6.769	34.691	101.079
Service Revenues	23.737	9.460	49.618	9.666	48.709	141.189

Project Company's total operating revenues are sited in the table 3.30. As it is said, aviation and non aviation revenues are totaled to find total operating revenues. Aviation revenues are directly related with the number of passengers. However, some items in the non aviational income does not related with the amount of passenger. In the airport business literature, the percentage of aviational revenues in total operating revenues plays important role. That's because, the rate of percentage tells about the dependence to the passengers. The aviation business has tendency to increase the amount of revenue not dependent to passenger amount. If any airport has less dependent than other airports, it can be commented as higher performer airport.

In the project financing model, Project Company has 41 % of revenues aviational revenues in the starting period of the business. However, following years the ratio of aviational revenue decreases. In 2009, it drops to 37 % and at the end of concession the average percentage drops to 36 %. It means that Project Company serves efficiently to increase parts of non aviational revenues.

Table 3.30 Table of Projected Cash Inflows of Operating Revenue

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Total operating revenues	940,574	269,794	1,578,071	331,092	1,947,948	5,067,478
Aviation revenues	383,988	100,824	604,171	127,910	730,587	1,947,481
Real Estate Revenues	104,122	29,099	177,093	39,905	248,532	598,752
Retail Revenues	452,463	139,870	796,807	163,276	968,828	2,521,246

Below table shows total revenues per total passenger. As it is seen in the first years of concession the amount is around 11 EUR. However, in the last five years time revenue per passenger drops to 10.6 EUR. That's because the revenue per passenger is fixed and EUR/ USD parity is in an increasing tendency. To reach revenue per passenger amount is critical for terminal operator due to compare operating expenses per passenger. Next part is intended to indicate the cash outflows of Project Company.

Table 3.31 Table of Projected Revenue Per Total Passenger

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Total operating revenues	940,574	269,794	1,578,071	331,092	1,947,948	5,067,478
International total pax	51,869	14,316	85,039	18,579	131,317	301,119
Domestic total pax	32,085	9,213	52,362	11,031	73,494	178,185
Total pax	83,954	23,529	137,400	29,610	204,811	479,304
Revenue per total pax	11.2	11.5	11.5	11.2	9.5	10.6

3.8 OPERATING EXPENSES

Cash outflows are expenses for a company. On an income statement, "operating expenses" is the sum of a business's operating expenses for a period of time, such as a month or year. OPEX is an ongoing cost for running a product, business, or system.

In another words, operating expenses are a category of expenditure that a business incurs as a result of performing its normal business operations. One of the typical responsibilities that management must contend with is determining how low operating expenses can be reduced without significantly affecting the firm's ability to compete with its competitors.

3.8.1 Cost of Purchased Service

This cost centre represents maintenance and spareparts expenses. Repair and maintenance of terminals, road illumination, waste water treatment center, heating plant are in the scope of expense item. Technical expenses represent the vast majority of repair maintenance and spare parts expenses and cover main responsibilities of three technical departments, namely electro mechanic, facility management and electronic systems.

Cost of purchased service expenses is calculated referred to auditor’s report of TAV Airports Holding in 31.12.2008. According to the report, consolidated cost of purchased service expenses are 8,718,015 EUR for the year of 2008. However, in 31.12.2006 date of auditor’s report the maintenace expenses are 12,662,471 EUR.

The modelling is projection according to the realized figures. The consolidated expense figure of TAV Holding is distributed in reference to number of passengers. The reasoning under this assumption is that passenger flow is directly proportional with cost of purchased expenses. 2006 is exception due to high amount of renovation costs. Other assumption is related to distribution of expenses items that 70 % of cost of purchased services expenses are accepted as repair and maintenance expense.

Table 3.32 Table of Projected Operating Expense from Cost of Purchased Services

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Cost of purchased services	26.588	5.841	30.383	6.406	36.956	106.174
Repair maintenence - INT	10.847	2.488	12.942	2.729	14.652	43.658
Repair maintenence - DOM	7.764	1.601	8.326	1.756	11.217	30.664
Spareparts - INT	4.649	1.066	5.547	1.169	6.279	18.710
Spareparts - DOM	3.328	686	3.568	752	4.807	13.142

3.8.2 Subcontractors

The main subcontractor expense item is cleaning service. Cleaning is TRY based cost in the profit and loss statement. In the model, the service is fully outsourced operations based on per person contract covering consumables as well. Personnel cost adjustment is made every 6 months based on consumer price index of last 6 months. And the number of the cleaning personnel is estimated per square meter. So that, for every 500 square meter, one cleaning personnel is hired.

Other subcontractors assumed as landscape and other. Landscape subcontractor is related with the green area that operator is responsible to maintain. Grass/flower renewal and fertilizers are the main cost items for subcontractor. The contract is

assumed to be based on TRY. Other subcontractor covers pesticide and garbage collection.

Table 3.33 Table of Projected Operating Expense from Subcontractor

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Subcontractor expense	23.136	6.332	36.177	7.971	47.413	121.029
Cleaning	22.197	5.951	34.051	7.507	44.723	114.430
Landscape	647	277	1.586	350	2.079	4.939
Other subcontractor	292	104	540	114	611	1.660

3.8.3 Utility Costs

Electricity expense is based on TRY pricing. Terminal operator firm buys electricity from DHMI. And DHMI sells electricity to terminal operator with a surcharge added to electricity tariff of business type.

Energy expenses play important role in the determination of net profit. While calculating the amount of energy expenses, utility cost amount is used which is expressed in the auditor's report of TAV Airports Holding in 31.12.2008. Accordingly, utility costs are 11,892,709 EUR for the year of 2008. Addition to that, IST has around 95 million kwh electricity consumption in a year. The realized unit price of electricity is used in the project modelling.

Terminal uses LNG for heating of airport. The consumption of LNG is projected in cold months. 1.3 million sm3 consumption of LNG is used for heating.

Table 3.34 Table of Projected Operating Expense from Utility

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Utility costs	42.588	14.390	85.507	18.752	112.506	273.742
Electricity INT	32.720	11.445	67.350	14.770	88.466	214.752
Electricity DOM	6.600	2.165	13.641	2.991	17.917	43.314
Heating	3.268	780	4.516	990	6.123	15.676

3.8.4 Personnel Expenses

Personnel costs are based on TRY denominated currency. Inside the personnel costs, wages and social security contributions constitute the biggest share. Other personnel costs are personnel meal, shuttlebus, uniform, health insurance and fringe benefit expenses such as fuel oil, birth, marriage, and death benefits to the personnel. While calculating the amount of personnel expenses, total personnel expenses amount is used which is expressed in the auditor's report of TAV Airports Holding in 31.12.2008. Accordingly, total personnel expenses are 145,902,809 EUR for the year of 2008. The average number of personnel number of TAV Airports Holding with all of its subsidiaries is 11,235. Istanbul Atatürk Airports has 2,074 personnel of this total personnel number. So that, the share of personnel number is adjusted to the personnel cost to estimate the following years. There makes some assumptions that are related to the number of personnel and the wages of personnel. In the terminal operator sector, most of the personnel are in the field of security. DHMI regulated the minimum number of security personnel that terminal operator hired. In the model, 1,500 are chosen to be the total number of security personnel. Other departments are general administration with 200, operation department with 200 and technical department with 250 personnel on the average base. For the starting year of concession, the wages cost per personnel is 3,600 TRY for general administration, 2,700 TRY for operation, 1,550 for technical, and 1,350 TRY for the security department. Following years, the wages are increased

by inflation rate of previous year in every April in a year. Addition to that, year end monthly average wage is given to the personnel.

Apart from the salary expenses, meal expense and shuttlebus expenses are calculated by cost per personnel. In meal expense calculation, for the starting year of concession, 5 TRY is the cost of per meal. In shuttlebus expense calculation, for the starting year of concession, 100 TRY is the cost of per personnel.

Other personnel expenses are uniform expenses. Uniforms are used by operation, security and technical departments. It is assumed that 70 % of the personnel wear uniforms. 500 TRY is takes as average uniform cost in a year for the starting year of the concession.

In the modelling, 100,000 EUR monthly premiums are assumed for the general management.

Table 3.35 Table of Projected Operating Expense from Personnel

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Total personnel expenses	128.868	36.781	212.510	46.449	276.029	700.636
Salaries	107.890	31.308	182.090	39.904	238.558	599.751
Salaries - General admin	20.142	5.862	34.075	7.465	44.605	112.149
Salaries - Operations	14.975	4.376	25.455	5.579	33.355	83.740
Salaries - Technic	18.020	5.267	30.640	6.715	40.150	100.792
Salaries - Security	54.753	15.802	91.920	20.146	120.449	303.070
Other personnel expenses	16.512	4.137	23.726	5.202	30.621	80.197
Meals	6.003	1.262	7.468	1.648	9.793	26.173
Shutllebus	5.333	1.498	8.573	1.890	11.260	28.555
Uniform	2.342	528	2.844	596	3.295	9.604
Health insurance	1.652	493	2.806	622	3.609	9.182
Training	602	160	918	201	1.206	3.087
Other fringe benefits	581	195	1.116	244	1.458	3.595
Premium of Gen. Management	4.466	1.335	6.694	1.343	6.849	20.688

3.8.5 Concession Fee

The concession fee for operating terminals until January 2021 is the biggest part of the operating expense of the Project Company. As it is stated before, 3.0 million USD (including VAT) is the amount of concession fee. The payment schedule of lease fee directly affects the cash flow of the company. The credit drawals are adjusted according to the schedule of lease fee payment. There is a payment schedule available for the lease fee. One assumption is made in arrangement of payments. Payments are made at every January of concession years except in 2006 which is the real case. Assumption is that VAT payments after 2007 are made in the second half of the year.

Payments are done in USD terms and converted to EUR terms in Project Company's cash flow. The invoices from DHMI are recorded every month of the concession period. The totalled amount of 3.0 million USD is divided equally covering concession period. While recording in the profit and loss statement, USD denominated invoice is converted to EUR.

The DHMI lease fee recording in the project and loss statement is shown below.

Table 3.36 Table of Projected Operating Expense from Concession Fee

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
DHMI lease fee	431.743	106.110	575.096	111.736	549.513	1.774.198
DHMI lease fee - INT	215.872	53.055	287.548	55.868	274.756	887.099
DHMI lease fee - DOM	215.872	53.055	287.548	55.868	274.756	887.099

3.8.6 Consulting Expense

Consultancy expenses consist of financial advisory services contracts, technical consultancy fee, auditing fees, legal consultancy fees. Cause airport terminal management business having lots of sides, consultancy expenses plays important role in operating expenses of the Project Company. Most of the consultancy expenses are done due to the necessities in credit process. For instance, at certain intervals, lender banks to the project needs traffic forecast to be renewed to the financial consultancy that is chosen in the credit statement of parties. Other consultancy is arising from the technical needs of the project. One of the parts of the agreement between Project Company and DHMI is that Domestic Terminal of IST is renewed after one year of the starting of the concession period. It is assumed that Project Company signed Engineering Procurement and Construction contract (EPC) with parties as an amount of 250 million EUR. The project will start in the second half of 2006 and be finished at the end of 2007. Therefore, this contract is done with the technical and financial control and consultancy of the lender banks in the syndication.

Consulting expense is calculated referred to auditor's report of TAV Airports Holding in 31.12.2008. According to the report consolidated consulting expense are 7,217,462 EUR for the year of 2008 and 14,342,565 EUR for the year of 2007.

Projection of consultancy expenses is estimated that higher expenses in the early years of the project. Following years are estimated by the Euro zone inflation rate increase of the previous years. After 2019, big part of the technical expenses is dropt as credit relationship ends.

Table 3.36 Table of Projected Operating Expense from Consultancy

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Consultancy expenses	23.725	4.065	22.573	4.939	27.118	82.421
Legal consultancy	4.471	1.206	6.273	1.323	7.101	20.373
Audit fees	484	114	577	118	608	1.901
Financial consultancy	1.554	332	1.953	443	2.687	6.969
Technical consultancy	11.067	1.422	7.940	1.735	8.690	30.854
IT consultancy	5.750	550	3.239	734	4.462	14.735
Other consultancy	400	440	2.591	587	3.570	7.588

3.8.7 DHMI Rent Expense

DHMI rent expenses are related with the operators' tariff applications different than DHMI tariff article. Added that, creating new commercial areas provide this source of expense. For instance, when operator create new advertising unit or office rent unit, the revenue is shared with DHMI as stated in official agreement.

It is assumed that aviation revenues are charged 20 % higher than the DHMI tariff article. Therefore, the difference is paid as DHMI rent expense.

Table 3.37 Table of Projected Operating Expense from Rent

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
DHMI rent expense	13.827	3.112	13.530	2.880	15.913	49.262

3.8.8 Advertising and Marketing Expense

This expense item is related with the advertisement organizations, fairs, sponsorship, advertising, sales and marketing activities.

Advertising and marketing expense is calculated referred to auditor's report of TAV Airports Holding in 31.12.2008. According to the report consolidated advertising and marketing expense are 1,802,411 EUR for the year of 2008 and 2,968,950 EUR for the year of 2007.

Table 3.38 Table of Projected Operating Expense from Advertising and Marketing

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Advertising and Marketing Expenses	5.080	1.073	5.625	1.187	6.375	19.339
Corporate communications	4.498	957	5.021	1.060	5.691	17.227
Sales and marketing	582	115	604	127	684	2.112

3.8.9 Insurance Expense

This expense item is related with insurance expense consisting of several insurance policies. In the senior facility agreement with lender banks there are stated insurance polices required.

These insurances can be stated as follows;

- All risks insurance: All assets including all devices, systems and furnishings, boarding bridges, equipment and installations, baggage handling systems, automatic aircraft docking system, CCTV system and card access system, public address system, building automation system, fire detection and alarm system, external fire hydrant system, wet and dry fire fighting system etc.) plant machinery, electronic and computer equipment, buildings and their contents in connection with the Project against "All Risks" of physical loss or damage (including mechanical and electrical breakdown, earthquake, flood) is subject to be insured.

- Business Interruption insurance: The scope of the insurance is related to loss of revenue by way of debt service, (principal and interest) fixed operating costs and increased cost of working following an interruption in the business as a direct result of physical loss or damage covered under the "All Risks" insurance.

- Terrorism & Sabotage insurance; The scope of the insurance is that loss or damage and subsequent interruption caused by an act of terrorism to the Project.

- Airport Owner’s and Operator’s Liability insurance: The interest of the insurance is that liabilities to third parties for bodily injury or damage to property arising out of the operation and maintenance of the Project and/or provision of the services at the Airport Terminals.

- Earthquake Cover insurance; The scope of the insurance is that loss or damage and subsequent interruption caused by earthquake.

Insurance expense is calculated referred to auditor's report of TAV Airports Holding in 31.12.2008. According to the report consolidated insurance expense are 6,990,086 EUR for the year of 2008 and 8,867,163 EUR for the year of 2007.

Table 3.39 Table of Projected Operating Expense from Insurance

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Insurance Expense	22.183	5.093	26.492	5.586	29.992	89.345

3.8.10 Other Taxes

The Lease Agreement between Project Company and DHMI includes a payment schedule for the total concession fee of USD 3.0 Billion. In addition DHMI has provided Project Company with an invoicing schedule in an official letter. Amounts and dates of these two schedules differ significantly.

DHMI issues equal monthly invoices of the entire concession fee of USD 3.0 billion throughout the concession period. Invoices state concession fee and payable VAT. Due to the fact that conducted payments to DHMI do not equal received invoices from DHMI.

As per current VAT law 17. amendment, the Company is obliged to book a certain percentage of its VAT as expense. The percentage is a ratio calculated every month by dividing duty free revenues to total revenues.

By Turkish VAT Tax law, a certain percentage of input VAT is booked as expense by the terminal operator. The amount of VAT is subject to partial exemption. According to Law, if transactions that are allowed to be deducted and that are not allowed to be deducted are done by the same enterprise, only the deductible portion of the VAT shall be subject to deduction. The common practice is to use a revenue key to determine this percentage.

All revenues are divided into two categories namely international and domestic. Then revenues in these categories are classified to aviation revenues, duty free revenues and other revenues with VAT.

VAT expense calculation is that the share of DF revenue in total international revenues is multiplied by the monthly VAT on DHMI lease fee.

VAT non-recoverable expense is calculated referred to auditor's report of TAV Airports Holding in 31.12.2008. According to the report consolidated VAT non-recoverable expense are 11,911,437 EUR for the year of 2008 and 15,080,829 EUR for the year of 2007.

DF revenue share in total international revenues is VAT expense ratio. This ratio is multiplied by international terminal concession VAT to calculate the amount of VAT expense resulted from DHMI VAT. The biggest part of expense is coming from the international terminal's concession paid VAT. Other part is the paid VAT from operating expenses. In this time ratio is calculated by the DF revenue divided by the total amount of operating revenues.

The following years VAT expense is near the amount in the table. When the share of DF revenues increase, the amount of expense increases either.

Table 3.40 Table of Projected Operating Expense from VAT

	2005	2006	2007	2008	2009
INT revenues - DF	40.522.846	83.759.053	101.405.550	110.045.976	102.354.392
INT revenues - TOTAL	98.164.702	192.389.695	235.791.912	254.971.542	226.106.121
TOTAL revenues	116.442.476	233.107.081	280.854.580	297.692.127	266.204.404
VAT on DHMI lease fee - INT	5.501.190	10.336.415	11.466.028	11.553.279	9.549.892
VAT on DHMI lease fee - DOM	5.501.190	10.336.415	11.466.028	11.553.279	9.549.892
VAT on other OPEX	3.442.938	6.578.507	6.308.097	6.708.788	6.771.957
Total VAT paid	14.445.317	27.251.337	29.240.153	29.815.346	25.871.742
INT - expense VAT %	41%	44%	43%	43%	45%
TOTAL - expense VAT %	35%	36%	36%	37%	38%
VAT expense from DHMI	**2.267.892**	**4.479.328**	**4.905.147**	**4.976.795**	**4.319.347**
VAT expense from other OPEX	**1.196.538**	**2.355.204**	**2.269.591**	**2.479.768**	**2.600.896**
Total VAT Expense	**3.464.430**	**6.834.533**	**7.174.739**	**7.456.563**	**6.920.243**

3.8.11 Other Operating Expense

This expense item is related with stationary, communication, travelling, public body meal, CIP expense and other expenses.

Traveling and transportation expense, communication and stationary expense and other operating expenses is calculated referred to auditor's report of TAV Airports Holding in 31.12.2008. According to the report consolidated the sum of these expenses

are 10,785,174 EUR for the year of 2008 and 9,202,398 EUR for the year of 2007. Due to the fact that expenses are related with personnel expenses, the amount of expense is proportional with number of personnel of IST.

Stationary, communication and travelling expenses are directly related to the number of the personnel. Public body meal expense is related to the meal expense served to public employees working at the airport such as DHMI employees and police staff. CIP expenses are related to the representation and hosting expenses. Addition to this other expenses cover chamber fees, subscriptions, legal funds and notary fees and minor fixed assets.

Table 3.41 Table of Projected Operating Expense from Other

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Other Operating Expenses	13.432	5.189	28.797	6.135	34.399	87.952
Stationary	271	71	373	79	423	1.217
Communication	726	199	1.083	236	1.312	3.556
Travel	1.008	121	662	143	808	2.742
Public body meal	4.276	1.409	8.336	1.840	10.931	26.792
CIP expenses	5.023	2.587	14.058	2.922	15.892	40.482
Other	2.129	802	4.285	915	5.032	13.163

3.9 EARNING BEFORE INTEREST, TAX, DEPRECIATION AND AMORTISATION (EBITDA)

EBITDA is essentially Net Income with interest, taxes, depreciation, and amortization added back to it. EBITDA can be used to analyze and compare profitability between companies and industries because it eliminates the effects of financing and accounting decisions.

EBITDA to interest payments ratio is used to assess a company's financial durability by examining whether it is at least profitably enough to pay off its interest expenses. A ratio greater than 1 indicates that the company has more than enough interest coverage to pay off its interest expenses. In the early 3.5 years of the project EBITDA to interest ratio is 1.4 and leading year ratio increase to 6.2 in 2015.

Table 3.42 Table of Projected EBITDA

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Total operating revenues	**940.574**	**269.794**	**1.578.071**	**331.092**	**1.947.948**	**5.067.478**
Aviation revenues	383.988	100.824	604.171	127.910	730.587	1.947.481
Real Estate Revenues	104.122	29.099	177.093	39.905	248.532	598.752
Retail Revenues	452.463	139.870	796.807	163.276	968.828	2.521.246
Total operating expense	**757.086**	**195.893**	**1.079.708**	**220.723**	**1.184.147**	**3.437.557**
Cost of purchased services	26.588	5.841	30.383	6.406	36.956	106.174
Total personnel expenses	129.853	37.768	218.356	47.739	283.694	717.410
DHMI rent expense	13.827	3.112	13.530	2.880	15.913	49.262
Subcontractor expense	23.136	6.332	36.177	7.971	47.413	121.029
Utility costs	42.588	14.390	85.507	18.752	112.506	273.742
DHMI lease fee	431.743	106.110	575.096	111.736	549.513	1.774.198
Consultancy expenses	23.725	4.065	22.573	4.939	27.118	82.421
Advertising and Marketing Expenses	5.080	1.073	5.625	1.187	6.375	19.339
Insurance Expense	22.183	5.093	26.492	5.586	29.992	89.345
Other Operating Expenses	13.432	5.189	28.797	6.135	34.399	87.952
Other taxes	24.931	6.921	37.173	7.391	40.268	116.685
EBITDA	**183.488**	**73.901**	**498.363**	**110.368**	**763.801**	**1.629.921**

3.10 DEPRECIATION

As airports are huge infrastructures, fixed investments are needed annually. Addition to investments, Upgrade and refurbishment of facilities with an amount of 250 million EUR is injected in the project. As Domestic Terminal of IST is old infrastructure, concession agreement covers this kind of investment in real terms. However, 250 million EUR is hypothetical for this project. It is assumed that for 2006

195 million EUR and for 2007 55 million EUR is expensed for upgrade and refurbishment investment. Other that 250 million investment, around 3.5 million EUR investment is planned ever year of the project except for the last two years.

Depreciation is recognised in profit or loss on a straight-line basis over the estimated useful lives of each part of an item of property and equipment.

Upgrade and refurbishment of investment is planned to be capitalized at the starting of 2008. The estimated useful life is 2008 to 2021 which is the end of the concession. However other investments, namely capital expenditures (CAPEX) are admitted to be depreciated in 5 years which is the estimated useful lives.

Table 3.43 Table of Projected Depreciation Expense

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Depreciation of tangible and intangible assets	27.210	23.009	113.624	22.953	119.565	306.360

3.11 FINANCIAL RESULT

Financial result is the net of interest and other similar expenses and net of gains and loss on exchange accounts.

3.11.1 Expenses Related with Credit

3.11.1.1 Credit Extensions

The financing of the project is in terms of syndicated credit and equity of the Project sponsors. The amounts in this part of the thesis are hypothetical as the amounts in real terms are near the assumed amounts. In real terms according to the auditor's report dated 31.12.2008, TAV Istanbul has bank loan in the amount of EUR 422,936,015 under the facility agreement. The terms of the loan requires semi-annual principal and interest payments on 4 July and 4 January of each year according to the loan agreements. TAV Istanbul also has additional borrowing right which is a maximum amount of EUR 65,000,000 related to facility agreement from which EUR 6,421,798 has already been utilised. The biggest part of the credit interest rate is Euribor+2.50% until 4 January 2013, Euribor+2.65% between the period of 4 January 2013 and 4 January 2016 and Euribor+2.75% between the period of 4 January 2016 and 4 July 2018.

According to the senior facility agreement the Project Company has a credit amount of 600 million EUR and 25 million EUR as in the name of working capital. Aggregate amount of credit is 625 million EUR. Credit interest rate of senior facility agreement and working capital is Euribor+2.60% until January 2012, after that data interest rate is assumed as Euribor+2.75%.

Availability of the loan period is until the end of June 2008, until when the company will be paying commitment fee for the unused loan capacity.

Grace period for the loan is a provision in most loan contracts that allows payment to be received for a certain period of time after the actual due date. During this period no late fees will be charged, and the late payment will not result in default or

cancellation of the loan. So that grace period for the senior loan is until Dec 2008 during which the company only pays interest over the used loan capacity every six months. Repayment of the principal of the credit starts as of December 2008 and ends on 31 December 2017. Availability of the Working Capital loan period is until the end of December 2016.

Sculpted repayment schedule for senior loan is stated below. It refers to the repayment profile being varied from an annuity style to match the underlying cashflows of the project. For example if there are high periods of expense/maintenance then the loan repayment is reduced to accommodate the increase and then increased in periods where there is more cash available.

Table 3.44 Table of Sculpted Repayment Schedule of Credit

Years	Loan Repayment Schedule
2008	1,90%
2009	5,50%
2010	7,15%
2011	7,85%
2012	8,55%
2013	7,35%
2014	13,05%
2015	13,65%
2016	16,40%
2017	18,60%
Total	100,00%

90 million TRY is the amount of the Share Capital. It is paid in the settlement of the Project Company. The Shareholder Loans will be injected during the funding phase, thereby always ensuring a maximum 85:15 Debt: Equity Ratio during the availability phase. "Debt to Equity Ratio" means, at any time, the ratio of (a) the sum of the principal amount outstanding under the Loans to (b) Equity Contributions at such time. In order to attain debt to equity ratio, shareholder loans are injected to the Project Company. 50 million EUR amount of shareholder loan is drawed in the base scenario case of project. Credit interest rate of shareholder loan is assumed to be fixed to Euribor+2.40%. Shareholder loan is a subordinated debt instrument that ranks below other loans (or securities) with regard to claims on assets or earnings. In the case of default, creditors with subordinated debt would not get paid out until after the senior debtholders were paid in full. Therefore, subordinated debt is more risky than unsubordinated debt.

Table 3.45 Table of Equity to Debt Ratio

EUR ('000)	Dec-05	Dec-06	Dec-07	Dec-08
Equity	55,669	55,669	55,669	55,669
Shareholder Loan	30,000	30,000	50,000	50,000
Total Shareholder contributions	85,669	85,669	105,669	105,669
Total Debt	440,000	470,000	570,000	600,000
Debt + Shaerholder Contributions	525,669	555,669	675,669	705,669
Equity / debt ratio	**16.30%**	**15.42%**	**15.64%**	**14.97%**

3.11.1.2 Financial Covenants

Financial covenants of the senior facility agreement are indicated below. Addition to this, cover ratios are the base ratios of the credit. Base case ratios are assumed to be;

- Minimum annual debt service coverage ratio (ADSCR): 1.15:1

- Minimum loan life coverage ratio (LLCR): 1.20:1

- Maximum Debt: Equity Ratio 85:15 during availability period

There are also Distribution Lock-Up ratios. It means that when ADSCR and LLCR ratios fall below the lock up ratios the lenders do not allow the Project Company to pay dividends to the shareholders. Distribution Lock-Up ratios are assumed to be;

- ADSCR < 1.25:1

- LLCR < 1.40:1

- All reserve accounts are funded

There are reserve accounts that must be fulfilled by the Project Company. They are listed as;

- Debt Service Reserve Account: A standard loan agreement will have a provision for a DSRA (usually 6 months capital and interest repayment). This is cash reserved to ensure that the project always has sufficient funds to meet its next scheduled debt repayment

- Maintenance Reserve Account: As for the DSRA but used to ensure that sufficient cash is available for the next periods maintenance expenditure.

- Lease Payment Reserve Account: It is provision in order to have ability pay back the amount of lease payment. Whether Project Company does not able to pay lease payment, the agreement between authority and Project Company is cancelled.

Starting from the first year of the loan repayment reserve account is used. For lease payment account, the following year's lease payment is put into reserve account in order to be able to pay lease payment next year. For maintenance account, reserve money set aside to cover a project's maintenance and repair expenses. It is assumed that amount is around 6 million EUR for 2008. Debt service reserve account is the half of the next years' debt payments which covers interest and principal payments of the loan. For 2008, 38 million EUR is reserved for DSRA.

Project Company should have positive free cash flow. Free cash flow is what is left over after a company has paid all its costs of production, has paid its lenders, and has made any capital expenditures required to keep its production facilities in good working order. Project financing can give investors control over free cash flow from the project. Typically, all free cash flow is distributed to the project's equity investors. As noted, because a project financing is specific to a particular pool of assets, the entity created to own and operate it has a finite life.

In the senior agreement process, the Project Company should apply mandatory hedging. It is the use of financial instruments to insulate the project company from risks of interest rate. It is assumed that 75 % of senior facilities are hedged. However, working capital loan and subordinated shareholder loan are not hedged.

If the floating rate, Euribor is higher than the fixed hedged rate, the interest expense of the Project Company increases. If reverse case happens, Project Company

gives less interest expense. Up to 2009, realized 6 month Euribor rates are used in the project finance modeling. The following years Euribor rate is the parallel to the movement of Euribor at the years of 2005 to 2009. In the first years of the project, Euribor rates are higher than hedged rate (7.28 %).

Cash Flow Available for Debt Service is the amount of cash after transferring cash to all of the reserve accounts in other words cash flow available for debt service is free cash flow. To calculate ADSCR, Cash Flow Available for Debt Service is divided by the debt payments of the period. Debt payments of the period can be reached to sum of loan repayments, interest expense, performance bond commission, commitment fee, political risk insurance fee, agency fee and banking commission.

ADSCR is calculated starting from the year of loan repayments.

Table 3.46 Table of Annual Debt Service Coverage Ratio

EUR ('000)	2008	2009	2010	2011	2012	2013
Interest expense - SFL	44,493	38,207	37,337	35,971	34,452	32,018
Interest expense - WCF	1,879	1,044	1,844	1,844	1,888	1,882
Interest expense - SHL	4,058	2,241	2,859	3,515	4,117	4,807
Perfomance bond commision	1,270	1,270	1,270	1,270	1,270	1,270
Political risk insurance premium	2,375	2,297	2,155	1,992	1,803	1,610
Agency fee	250	250	250	250	250	250
Banking commission	100	100	100	100	100	100
Loan repayment - SFL	11,400	33,000	42,900	47,100	51,300	44,100
Total Debt Payment of the period	**65,825**	**78,409**	**88,716**	**92,042**	**95,180**	**86,037**
Free cashflow	**87,522**	**144,027**	**160,083**	**177,755**	**202,661**	**209,333**
ADSCR	**1.330**	**1.837**	**1.804**	**1.931**	**2.129**	**2.433**

Loan Life Cover Ratio (LLCR) is a measure of the ability of a project to pay its debt obligations over the loan life. This ratio provides a projects ability to repay a loan over the loan period. A ratio of 1 indicates that the entire project could exactly repay loan within its loan life using all Cash Flow Available for Debt Service (CAFDS). Any amount greater than 1 is the banks comfort taking into account the risks associated with the project.

LLCR is net present value of cash flows that is divided by principal payments of loan. Cash flows is the sum of the current and future cash flows before debt service, and principal is the sum of the current and future principal payments (i.e. the total loan commitment).

Table 3.47 Table of Loan Life Cover Ratio

EUR ('000)	2008	2009	2010	2011	2012	2013
Discount factor	7.28%	7.28%	7.28%	7.28%	7.43%	7.43%
Credit Amount (principal)	613,600	580,600	537,700	490,600	439,300	395,200
NPV of Free Cash Flow	1,248,617	1,251,948	1,199,016	1,126,178	1,025,575	899,077
LLSCR	**2.035**	**2.156**	**2.230**	**2.296**	**2.335**	**2.275**

Project Company gets interest income from the positive cash inflow. It is assumed that all of the cash is in terms of EUR. In the auditor's report of TAV Airports Holding in 31.12.2008, time deposit interest rate of TAV Holding is 3,0 – 6,75 % for the year of 2008, 3,25 – 5,20 % for the year 2006. In the auditor's report of TAV Airports Holding in 31.12.2006, time deposit interest rate of TAV Holding is 1,9 – 2,4 % for the year of 2006. Average rates are used in the projection of interest revenues.

Table 3.48 Table of Projected Net Interest Expense

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Intereset expenses	138,955	41,492	198,321	24,308	27,345	430,421
Swap interest expense	93,647	32,138	126,613	15,369	15,233	283,000
Interest expense (25% of SFA)	30,876	6,069	41,690	3,967	3,898	86,499
Interest expense - WCF	4,758	1,044	9,341	1,882	1,888	18,913
Interest expense - SHL	9,674	2,241	20,677	3,090	6,327	42,009
Interest revenues	7,283	3,001	21,567	6,604	24,147	62,602
NET OFF	**131,672**	**38,491**	**176,755**	**17,704**	**3,198**	**367,819**

3.11.2 Expenses Other Than Credit Expense

Performance bond is issued in favour of DHMI. It is a bond issued to one party of a contract as a guarantee against the failure of the other party to meet obligations specified in the contract. It is calculated as 6 % of the contract amount that lease fee in our case from that amount of lease fee Project Company pays 1 % of the performance bond amount as a fee yearly.

Lender banks request fee in the name of political risk insurance premium. It is the risk that an investment's returns could suffer as a result of political changes or instability in a country. Instability affecting investment returns could stem from a change in government, legislative bodies, other foreign policy makers, or military control. Political risk is also known as "geopolitical risk", and becomes more of a factor as the time horizon of an investment gets longer. It is assumed that political risk insurance base is 78 % of the used credit. And the premium of this risk insurance is 0.5 % of the base annually.

Another expense item is agency fee. These refer to the fees charged by the agent bank which advises other participating banks of advances taken and changes in interest rates for a foreign or domestic borrower in a syndicated loan transaction. It is assumed that 250 thousand EUR for every year agency fee expense is projected in the model.

It is added that 15 million EUR is the underwriting fee spent at the settlement of the project. It is the charge by a lender for setting up a loan. The fee is payable in advance.

Table 3.49 Table of Projected Financial Expenses

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Financial expenses	28,373	3,932	17,126	2,711	9,176	61,319
Banking expenses	415	115	575	115	377	1,597
Perfomance bond commision	3,811	1,270	6,351	1,270	6,459	19,162
Commitment fee	1,699	0	0	0	0	1,699
Political risk insurance premium	6,449	2,297	8,949	1,076	1,091	19,861
Agency fee	1,000	250	1,250	250	1,250	4,000
Underwritting expense	15,000	0	0	0	0	15,000

3.11.3 Corporation Tax

Corporate tax is applied on taxable corporate income, which is calculated from the statutory accounting profit by adding back non-deductible expenses, and by deducting dividends received from resident companies, other exempt income and investment incentives utilised. The advance corporate income tax rate at 31 December 2008 is 20 % in Turkey. Losses can be carried forward for offsetting against future taxable income for up to 5 years. Losses cannot be carried back.

Statutory books are kept in terms TRY for Project Company. So that there is a need for profit and loss statement in terms of TRY based. In TRY based profit and loss statement, translation gain and loss have to be calculated. Cash, DHMI lease payment and credit are the basis for the translation gain and loss statement. For cash, translation gain and loss is calculated by amount of cash multiplied by the change in EUR/ TRY foreign exchange rate. For credit, translation gain and loss is calculated by principal amount of credit multiplied by the change in EUR/ TRY foreign exchange rate. For DHMI lease fee, translation gain and loss is difference of USD invoice in terms of EUR at the invoice date and advance date. As DHMI lease fee payments are treated like advance payments due to higher amounts of payment realized in the starting of the concession period, translation gain and loss is calculated by the difference. As a result, translation gain and loss affect the profit and loss statement before the calculation of corporate tax. Another words, translation gain and loss affects corporate tax base.

Project Company has losses in statutory books until 2009. In 2008, due to the high fluctuations in EUR/ TRY rate, Project Company record high translation losses. The loss of 2008 is carried forward to following years. The result is in 2012, Project Company pays corporate tax. When corporate tax is paid for any company, earning after tax amount is the basis for first legal reserve. In accordance with Article 466 of the Turkish Commercial Code, 5% of the net profit shall be set aside as the first legal reserve until it reaches 20% of the paid-in capital. Then first legal reserve is subtracted from EAT to reach distributable profit. From this amount second legal reserve is set aside. The second reserve is appropriated out of the net distributable profit at the rate of (1/11) upon the decision to distribute the whole amount of distributable profit. To calculate second reserve in the modelling process, it is assumed that 1/11 of distributable profit after second reserve is set aside although in 2016 and 2017 years only 25 % of distributable dividend is paid.

Table 3.50 Table of Projected Corporation Tax

TRY ('000)	2012	2013	2014	2015	2016
EBT	92.863	91.833	134.694	133.555	217.668
Corporate tax base	92.863	91.833	134.694	133.555	435.337
Corporate tax rate	20%	20%	20%	20%	20%
Corporate tax	18.573	18.367	26.939	26.711	87.067
EAT	74.290	73.466	107.756	106.844	130.601
Paid in capital	90.000	90.000	90.000	90.000	90.000
Cap of first legal reserve	18.000	18.000	18.000	18.000	18.000
First legal reserve	4.643	4.592	6.735	6.674	0
Distributable profit after equity	69.647	68.875	101.021	100.171	130.601
Second legal reserve	6.332	6.261	9.184	9.106	11.873
Distributable dividend	0	62.613	91.837	91.064	118.728

TRY ('000)	2017	2018	2019	2020	2021
EBT	266.592	304.148	305.826	298.436	19.782
Corporate tax base	266.592	304.148	305.826	298.436	19.782
Corporate tax rate	20%	20%	20%	20%	20%
Corporate tax	53.318	60.830	61.165	59.687	3.956
EAT	213.273	243.319	244.661	238.749	15.826
Paid in capital	90.000	90.000	90.000	90.000	90.000
Cap of first legal reserve	18.000	18.000	18.000	18.000	18.000
First legal reserve	0	0	0	0	0
Distributable profit after equity	213.273	243.319	244.661	238.749	15.826
Second legal reserve	19.388	22.120	22.242	21.704	1.439
Distributable dividend	193.885	221.199	222.419	217.044	14.387

In cash flow statement, it is assumed that Project Company has decided to pay 25 % of distributable dividend of 2016 and 2017. Due to the fact that credit loan repayment in 2017, Project Company can not afford to pay both distributable profits, DHMI lease payment and the loan repayment. As in the sculpted repayment schedule for senior loan, the biggest share of loan repayment is in 2016 and 2017. According to the model 1.2 million EUR is distributed in the name of dividend at the end of the project.

3.11.4 Earning After Tax (EAT)

Earning after tax is calculated by subtracting corporation tax from earning before tax (EBT). Project Company financial tables indicate that in the early years of the project, EAT is negative. The reason is lower number of international passengers of the year 2006. After that year, international traffic of IST jumps strictly.

Table 3.51 Table of Projected Profit and Loss Statement

EUR ('000)	2005 - 2008	2009	2010 - 2014	2015	2016 - 2021	Total
Total operating revenues	940.574	269.794	1.578.071	331.092	1.947.948	5.067.478
Total operating expense	757.086	195.893	1.079.707	220.723	1.184.143	3.437.552
EBITDA	**183.488**	**73.901**	**498.364**	**110.369**	**763.805**	**1.629.926**
Depreciation of tangible and intangible assets	27.210	23.009	113.624	22.953	119.565	306.360
EBIT	**156.278**	**50.892**	**384.740**	**87.416**	**644.240**	**1.323.566**
Financial Result	160.045	42.423	193.880	20.415	12.375	429.138
EBT	**-3.767**	**8.470**	**190.859**	**67.001**	**631.865**	**894.428**
Corporation Tax	0	0	28.396	11.191	141.717	181.304
EAT	**-3.767**	**8.470**	**162.464**	**55.810**	**490.148**	**713.124**

3.12 CASH FLOW

Cashflow is vital to a business and anyone looking either to lend, invest or extend credit to you will wish to see that the business can generate sufficient cash to cover its outgoings. An accurate cashflow will enable you to predict your financing needs, allowing you to establish facilities in advance when lenders are more sympathetic, rather than afterwards, when they will be less so. Cash flow is a revenue or expense stream that changes cash account over a given period. Cash inflows usually arise from operating and nonoperating activities. Cash outflows result from expenses or investments. This holds true for both business and personal finance. Cash flow is crucial to an entity's survival. Having ample cash on hand will ensure that creditors, employees

and others can be paid on time. If a business does not have enough cash to support its operations, it is said to be insolvent, and a likely candidate for bankruptcy should the insolvency continue.

Cash flow statement is different than the income statement. It shows the cash streams. For instance, depreciation is not really a cash expense; it is an amount that is deducted from the total value of an asset that has previously been accounted for. That is why it is added back into net sales for calculating cash flow.

For project finance modelling cash flow statement is highly critical. Every component that generates revenue or causes expenditure has a part in cash flow. Cash flow statement enables us to define the timing of credit drawals.

In planning of cash flow, some assumptions are made. As in airport terminal sector, trade receivables are generally limited to aviation sector, receivables turnover ratio is generally low. In projection, the receivables are collected at the date of generation. This means that revenues and expenditures are parallel to profit and loss statement except for some difference. One of them is concession fee. In profit and loss statement, invoices are recorded every month. However cash flow statement reflects the date of payment rather than invoices. The reason is that lease payment is like an advance payment.

There is an important difference of calculating cash flow compared to profit and loss statement. All the payments and receivables are including VAT except for some revenue items such as passenger fee revenue. Financial modelling calculates input and output VAT. Input VAT means when a company buys goods or services from another supplier, VAT is charged on the purchase price. Output VAT means when the

company sells its own goods or services it charges its customers VAT. For Project Company, input VAT is higher than the input VAT. As it is explained in other taxes section, some part of these VAT receivables recorded as expense, meaning that nonrecoverable. Cash flow statement calculates input, output and the amount reimbursable from State.

As it is seen in the analysis of cash flow, in 2005, high amount of non operational cash received which is the reason of credit drawal. However, in 2006, it turns into negative as a reason of huge refurbishment investment. Non operational cash paid covers loan repayment, corporate tax and dividend payments in leading years. At the end of the concession Project Company ends 120 million EUR cash balance.

Table 3.52 Table of Projected Cash Flow Statement

EUR ('000)	2005	2006	2007	2008	2009	2010
Opening Balance	0	27,444	3,998	116,035	170,765	184,714
Total Cash collected	77,651	236,263	284,702	297,766	265,828	274,736
Total Cash paid	478,359	86,026	184,700	203,365	167,935	177,328
Closing balance - operational result	**-400,707**	**150,237**	**100,002**	**94,400**	**97,893**	**97,409**
Financial result (expense)	-19,808	-41,824	-49,085	-49,296	-42,423	-42,649
Closing balance - financial result	**-420,515**	**108,413**	**50,918**	**45,105**	**55,470**	**54,759**
Non operational Cash paid/ received	447,952	-131,859	61,119	9,625	-41,521	-50,656
Closing Balance	27,437	3,998	116,035	170,765	184,714	188,817
Free cashflow	27,437	3,998	116,035	21,697	65,619	71,367

EUR ('000)	2011	2012	2013	2014	2015	2016
Opening Balance	188,817	200,152	220,165	256,089	246,491	212,764
Total Cash collected	293,209	312,337	332,746	345,209	327,125	340,296
Total Cash paid	185,285	192,570	198,058	199,763	198,950	196,379
Closing balance - operational result	**107,924**	**119,768**	**134,688**	**145,446**	**128,175**	**143,917**
Financial result (expense)	-41,582	-40,233	-37,741	-31,675	-20,415	-14,135
Closing balance - financial result	**66,342**	**79,535**	**96,947**	**113,771**	**107,759**	**129,782**
Non operational Cash paid/ received	-55,007	-59,522	-61,023	-123,369	-141,487	-152,788
Closing Balance	200,152	220,165	256,089	246,491	212,764	189,758
Free cashflow	85,713	107,480	123,296	137,566	98,394	79,237

EUR ('000)	2017	2018	2019	2020	2021
Opening Balance	189,758	117,219	138,367	164,401	224,504
Total Cash collected	359,475	381,745	400,452	411,731	27,561
Total Cash paid	200,652	209,131	215,350	223,562	13,120
Closing balance - operational result	**158,824**	**172,614**	**185,102**	**188,169**	**14,441**
Financial result (expense)	-5,960	1,508	2,333	3,435	4,819
Closing balance - financial result	**152,863**	**174,122**	**187,434**	**191,604**	**19,260**
Non operational Cash paid/ received	-225,402	-152,974	-161,400	-131,501	-123,374
Closing Balance	117,219	138,367	164,401	224,504	120,390
Free cashflow	117,219	138,367	164,401	224,504	120,390

4. EMPRICAL ANALYSIS AND FINDINGS

4.1 SIMPLE LINEAR REGRESSION

After building up the business model for the Project Company, this section clarifies the relationship of some parameters with the operating revenues and operating expenses. The goal of the study is to design a linear regression model in order to estimate EBITDA of the Project Company.

In addition to this goal, for checking the reliability of business model created, a regression analysis has been done. Finally the relations between some parameters and EBITDA of the Project Company are checked.

The amount of the overall passenger has greater effect on the performance of the airport operator. In order to define a regression model which is linear, number of passenger is used as independent variable in the model. As the year of 2005 is half year operation for the Project Company, it is excluded from the observations. So as to observations are starting from 2006 to 2020 of operating period. The operations of the Project Company in 2006, 2007 and 2008 are in real terms. So there of all observation is in real terms while other values are taken from business model of the Project Company.

According to the data observed from the business model of Project Company following regression is attained. The regression tells that 10.94 EUR is the revenue per passenger while 17,336,065 EUR is the fixed revenue independent from passenger parameter.

"Operating Revenue = 17,336,065 + 10.94 x Passenger + Error"

For this regression model, standard error of the regression is 10.9 Million EUR. While mean of the expected dependent variable is 327.6 Million EUR, standard error share is around 3.3 % which is very small.

Using sample data, the standard error of the slope, the slope of the regression line, the degrees of freedom, the test statistic, the P-value associated with the test statistic and adjusted R square are found.

First summary of the output is adjusted R square. In regression analysis the adjusted R square is 0.954 which is very close to 1.00. An R2 between 0 and 1 indicates the extent to which the dependent variable is predictable. An R2 of 0.95 means that 95 percent of the variance in Y (dependent variable) is predictable from X (independent variable).

The critical value based on a t score with 13 (n – 2) degrees of freedom with 95 % confidence levels is 2.160.

If there is a significant linear relationship between the independent variable X and the dependent variable Y, the slope will not equal zero. The null hypothesis states that the slope is equal to zero, and the alternative hypothesis states that the slope is not equal to zero. According to this expression, t score amount of 17.21 is bigger than 2.160. Therefore, null hypothesis is rejected. As a result, there is a linear regression

between dependent and independent variables. In order to prove the result from t statistic, small p value suggests that the sample is very unlikely under the assumption of null hypothesis.

Table 4.1 Table of Simple Linear Regression Summary Output – Operating Revenue

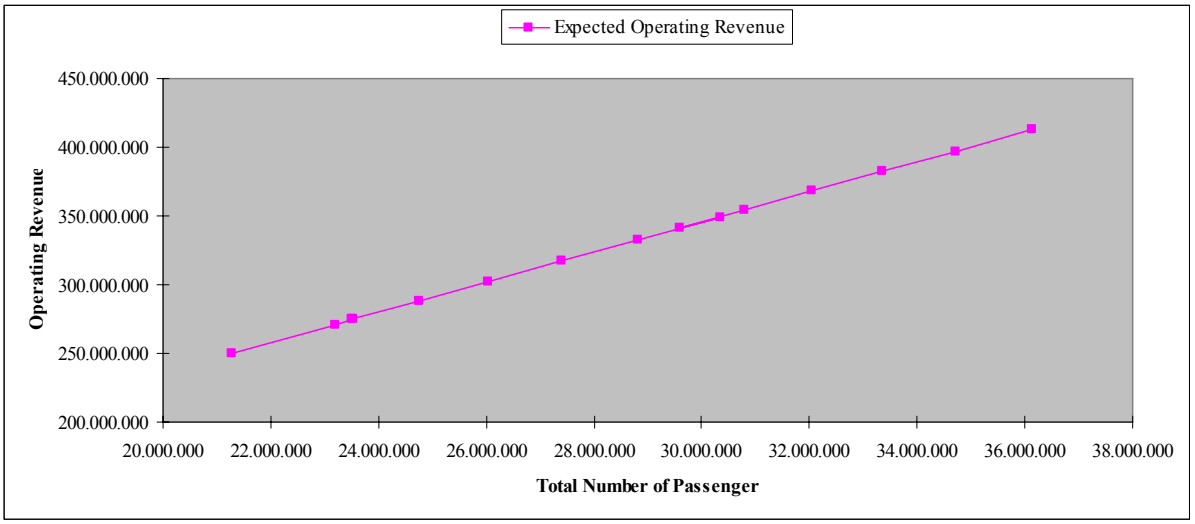
Regression Statistics	
Multiple R	0,97875
R Square	0,95796
Adjusted R Square	0,95472
Standard Error	10.909.512
Observations	15

ANOVA

	df	*SS*	*MS*	*F*
Regression	1	3,52525E+16	3,52525E+16	296
Residual	13	1,54723E+15	1,19017E+14	
Total	14	3,67997E+16		

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	17.336.065	18.251.045	0,95	0,36
Passenger	10,94	0,64	17,21	0,00

Figure 6. Operating Revenue Projection Using Regression Model



The amount of the overall passenger has also effect on operating expenses of airport. In this part of the analysis, number of passenger independent variable is used in regression to find dependent variable operating expenses excluding lease payment of the airport. The reason of the exclusion of lease payment is that it is fixed in USD terms. Whatever the number of passenger, the payment of lease is the same and determined in the starting of project with a concession agreement.

According to the data observed from the business model of Project Company following regression is attained. The regression tells that 3.155 EUR is the expense per passenger while 17,410,415 EUR is the fixed operating expense independent from passenger parameter.

"Operating Expense excluding Rent = 17,410,415 + 3.155 x Passenger + Error"

For this regression model, standard error of the regression is 3.9 Million EUR. While mean of the expected dependent variable is 106.9 Million EUR, standard error share is around 3.7 % which is very small.

First summary of the output is adjusted R square. In regression analysis the adjusted R square is 0.93 which is very close to 1.00. This means that 93 percent of the variance in Y, dependent variable is predictable from X, independent variable.

The critical value based on a t score with 13 (n – 2) degrees of freedom with 95 % confidence levels is 2.160.

T score amount of 13.76 is bigger than 2.160 while confidence interval is 95 % in two tailed t test. Therefore, null hypothesis is rejected. As a result, there is a linear regression between dependent and independent variables. In order to prove the result from t statistic, small p value which is near to zero, suggests that the sample are very unlikely under the assumption of null hypothesis.

Table 4.2 Table of Simple Linear Regression Summary Output – Operating Expense

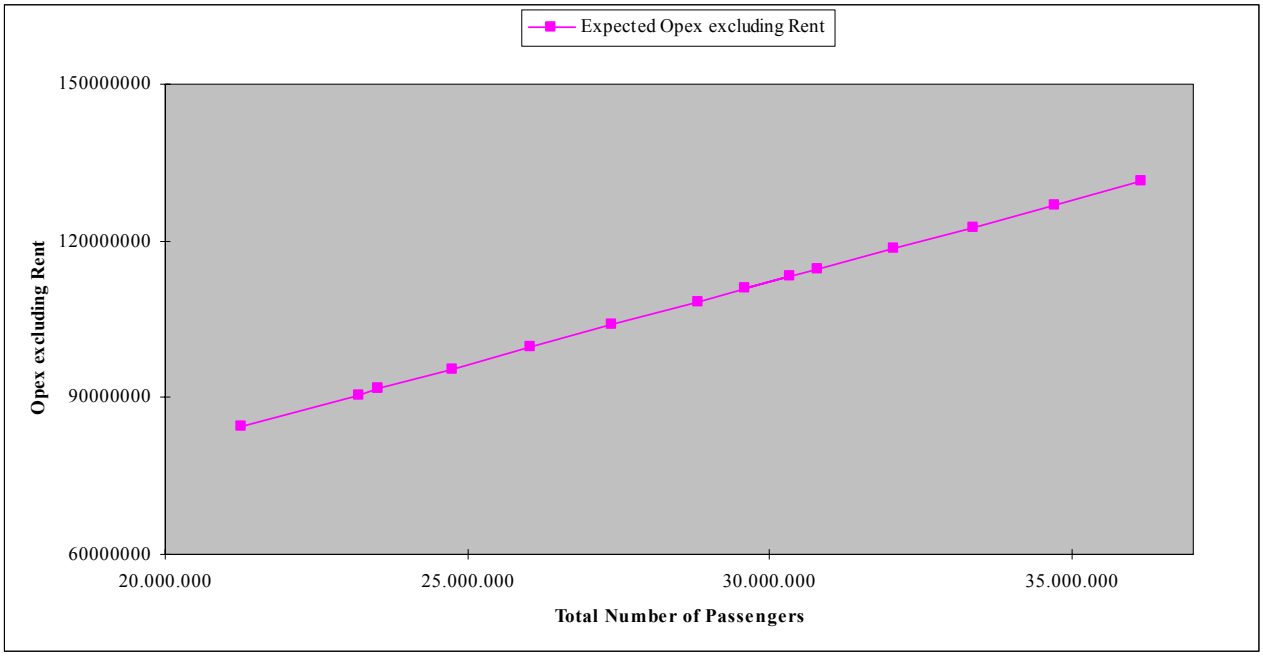
Regression Statistics	
Multiple R	0,9673632
R Square	0,9357916
Adjusted R Square	0,9308525
Standard Error	3.934.446
Observations	15

ANOVA

	df	*SS*	*MS*	*F*
Regression	1	2,9329E+15	2,9329E+15	189,466
Residual	13	2,01238E+14	1,54799E+13	
Total	14	3,13414E+15		

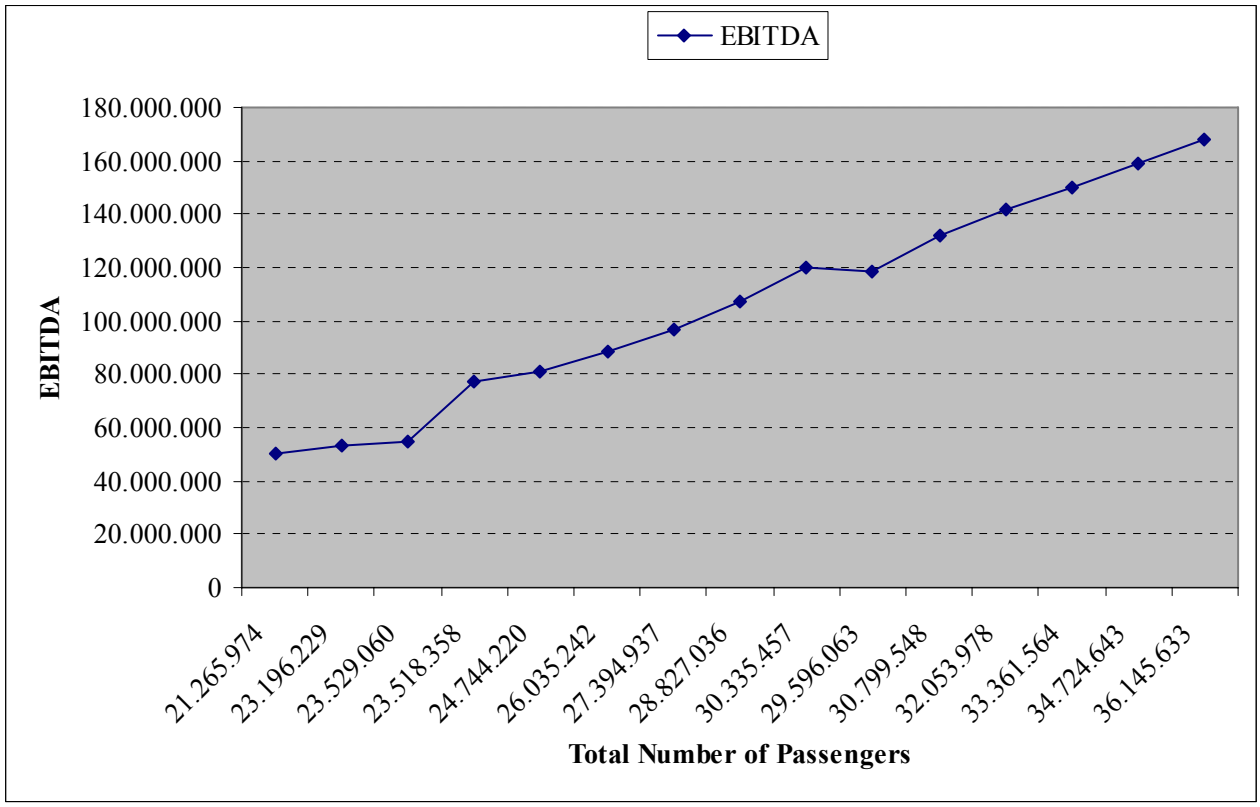
	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	17.410.415	6.582.123	2,645	0,020
Passenger	3,155	0,229	13,765	0,000

Figure 7. Operating Expense Projection Using Regression Model



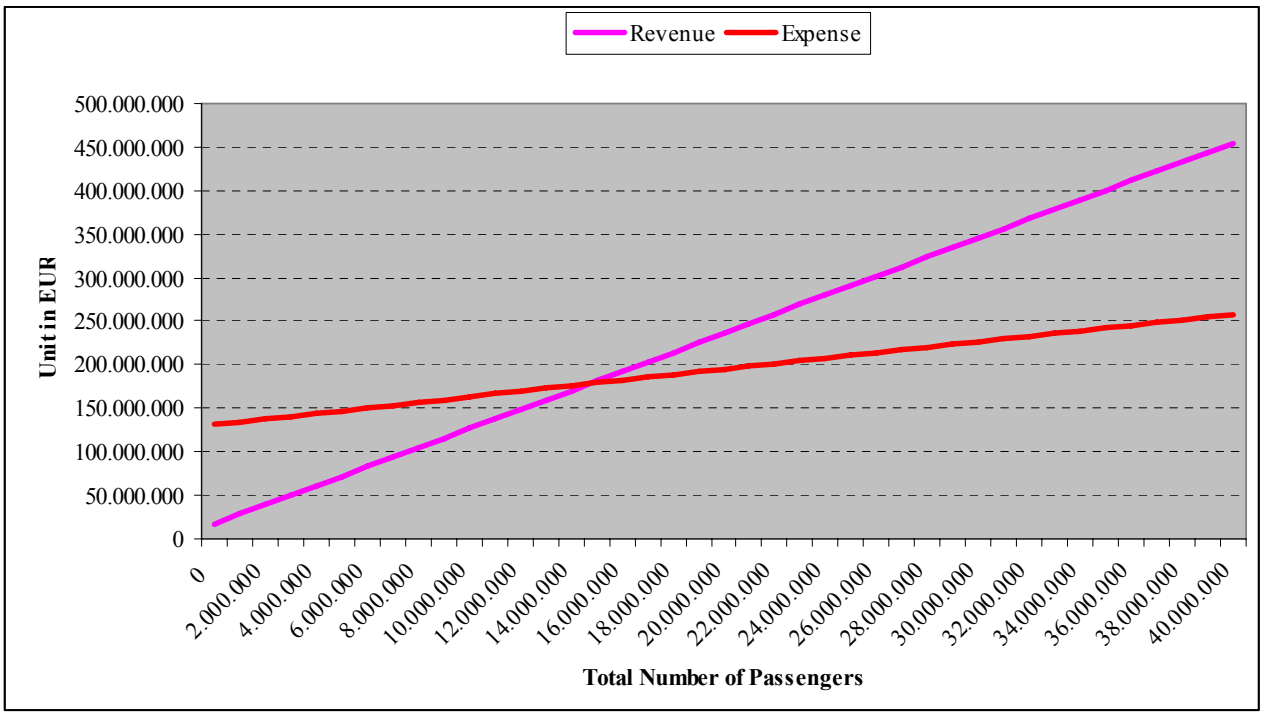
In the light of regression analysis, the amount of EBITDA of Project Company is constituted in below figure.

Figure 8. EBITDA Projection Using Regression Model



With the two regression equations; "Operating Revenue = 17,336,065 + 10.94 x Passenger + Error" and "Operating Expense excluding Rent = 17,410,415 + 3.155 x Passenger + Error", EBITDA of the Project Company is constituted. Another analysis is done named breakeven analysis in order to find breakeven point where total revenue received equals the total operating expenses. 14,680,816 of total passengers is the breakeven point where operating revenue is equal to the operating costs in reference to the regression analysis.

Figure 9. Breakeven Analysis Using The Regression Model



4.2 MULTIPLE LINEAR REGRESSION

This part of the regression analysis adds one independent variable to the equation. It is EUR/ USD parity effect. Parity is negatively correlated with operating revenues due to USD denominated international passenger revenue.

According to the data observed from the business model of Project Company following regression is attained. The regression tells that 11.57 EUR is the revenue per passenger and EUR/USD parity coefficient is -119,023,257 EUR as 171,644,966 EUR is the intercept independent from passenger and parity parameters.

"Operating Revenue = 171,644,966 + 11.57 x Passenger – 119,023,251 x Parity + Error"

The coefficient of determination and test of regression slope figures are stated in the below table. Due to this output, adjusted R square is near to 1.00 and p values are less than the significance level.

Table 4.3 Table of Multiple Linear Regression Summary Output – Operating Revenue

Regression Statistics	
Multiple R	0,9934
R Square	0,9868
Adjusted R Square	0,9846
Standard Error	6.353.437
Observations	15

ANOVA

	df	*SS*	*MS*	*F*
Regression	2	3,63153E+16	1,8158E+16	449,82341
Residual	12	4,84394E+14	4,0366E+13	
Total	14	3,67997E+16		

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	171.644.966	31.895.465	5,38	0,0002
Passenger	11,57	0	29,67	0,0000
Parity	-119.023.251	23.195.731	-5,13	0,0002

Second multiple regression line to find the amount for operating expense excluding lease payment add one independent variable, average EUR/ TRY exchange rate. As most part of the operating expenses are denominated in TRY, then converted to EUR, EUR/ TRY exchange rate negatively correlated to operating expenses.

According to the data observed from the business model of Project Company following regression is attained. The regression tells that 3.83 EUR is the expense per passenger and -25,343,528 EUR expense per EUR/ TRY exchange rate while 53,693,695 EUR is the intercept independent from passenger and exchange rate parameter.

"Operating Expense excluding Rent = 53,693,695 + 3.83 x Passenger – 25,343,528 x Exchange Rate + Error"

The coefficient of determination and test of regression slope figures are stated in the below table. Due to this output, adjusted R square is near to 1.00 and p values are less than the significance level.

Table 4.4 Table of Multiple Linear Regression Summary Output – Operating Expense

Regression Statistics	
Multiple R	0,983438828
R Square	0,967151929
Adjusted R Square	0,96167725
Standard Error	2929029,058
Observations	15

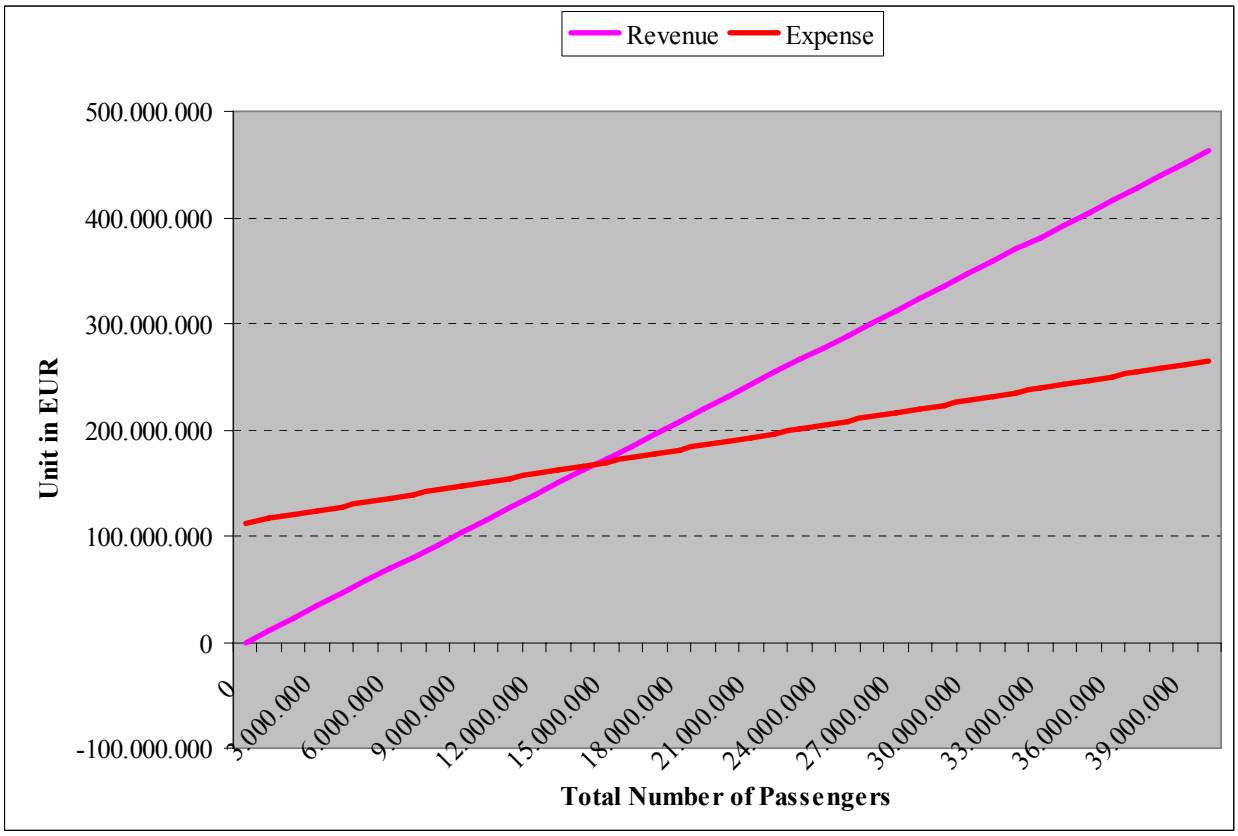
ANOVA

	df	*SS*	*MS*	*F*
Regression	2	3,03119E+15	1,5156E+15	176,659127
Residual	12	1,02951E+14	8,5792E+12	
Total	14	3,13414E+15		

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	53.693.695	11786519,11	4,556	0,001
Passenger	3,836	0,263826349	14,541	0,000
Average rate of EUR/ TL	-25.343.528	7487575,124	-3,385	0,005

With the multiple regression analysis, breakeven point is 14.5 million passengers. While finding the breakeven point, some assumptions are made as a result of two independent variables. So that parity and EUR/ TRY exchange rate are used as the average of the observations. Despite of the assumptions, breakeven passenger resulted as in the linear regression case with one independent variable.

Figure 10. Breakeven Analysis Using The Multiple Regression Model



If the analysis is taken one step further, breakeven points in terms of total number of passengers can be calculated. As the EBITDA is related to the EUR/ TRY exchange rate and EUR/ USD parity, breakeven points are changed with change of parameters. Minimum rate of EUR/ TRY exchange rate and maximum rate of EUR/

USD parity gives us the maximum rate of breakeven point which is 24,050,058 passengers.

Table 4.5 Table of Passenger Breakeven Analysis

Passenger Breakeven		EUR/ TRY exchange rate				
		1,900	2,000	2,194	2,300	2,500
EUR/ USD parity	1,300	13.285.681	12.958.245	12.323.020	11.975.938	11.321.066
	1,446	15.530.822	15.203.387	**14.568.161**	14.221.079	13.566.208
	1,600	17.898.985	17.571.550	16.936.324	16.589.242	15.934.371
	1,800	20.974.522	20.647.086	20.011.860	19.664.779	19.009.907
	2,000	24.050.058	23.722.622	23.087.397	22.740.315	22.085.443

4.3 INTERNAL RATE OF RETURN CALCULATION OF THE PROJECT

IRR is a metric to decide whether a single project is worth investing in. Theoretically, a simple decision making criteria can be stated to accept a project if the IRR exceeds the cost of capital and rejected if this IRR is less than the cost of capital. Cash inflows and cash outflows of the period are totalled to get net cash inflow. In more familiar terms, the IRR of an investment is the interest rate at which the discounted costs of the investment are equal to the benefits of the investment. This means that all gains from the investment are inherent to the time value of money and that the investment has a zero net present value at this interest rate, which happens to be IRR

As long as IRR is greater than cost of funds, project is acceptable.

Table 4.6 Projected Free Cash Flows and Internal Rate of Return

EUR ('000)	2005	2006	2007	2008	2009	2010	2011	2012	2013
Operating Revenues	118.180	236.263	284.702	301.732	269.794	278.703	297.175	316.304	336.713
Operating Expenses	107.094	208.186	221.425	220.380	195.893	202.717	210.682	218.689	223.081
EBITDA	11.086	28.077	63.277	81.352	73.901	75.986	86.493	97.615	113.632
Amortization and depreciation	636	1.828	2.464	22.282	23.009	22.470	22.657	22.775	22.833
EBIT	10.450	26.249	60.813	59.070	50.892	53.516	63.836	74.840	90.799
EBIT + depreciation	11.086	28.077	63.277	81.352	73.901	75.986	86.493	97.615	113.632
Interest on cash accounts	61	206	1.872	5.144	3.001	3.182	3.376	3.662	4.211
Capital investment	-62.027	-197.783	-58.229	-3.550	-3.634	-3.665	-3.716	-3.772	-3.839
Corporate tax	0	0	0	0	0	0	0	0	-8.477
Net Cash inflow	-50.881	-169.500	6.920	82.946	73.268	75.502	86.153	97.506	105.527

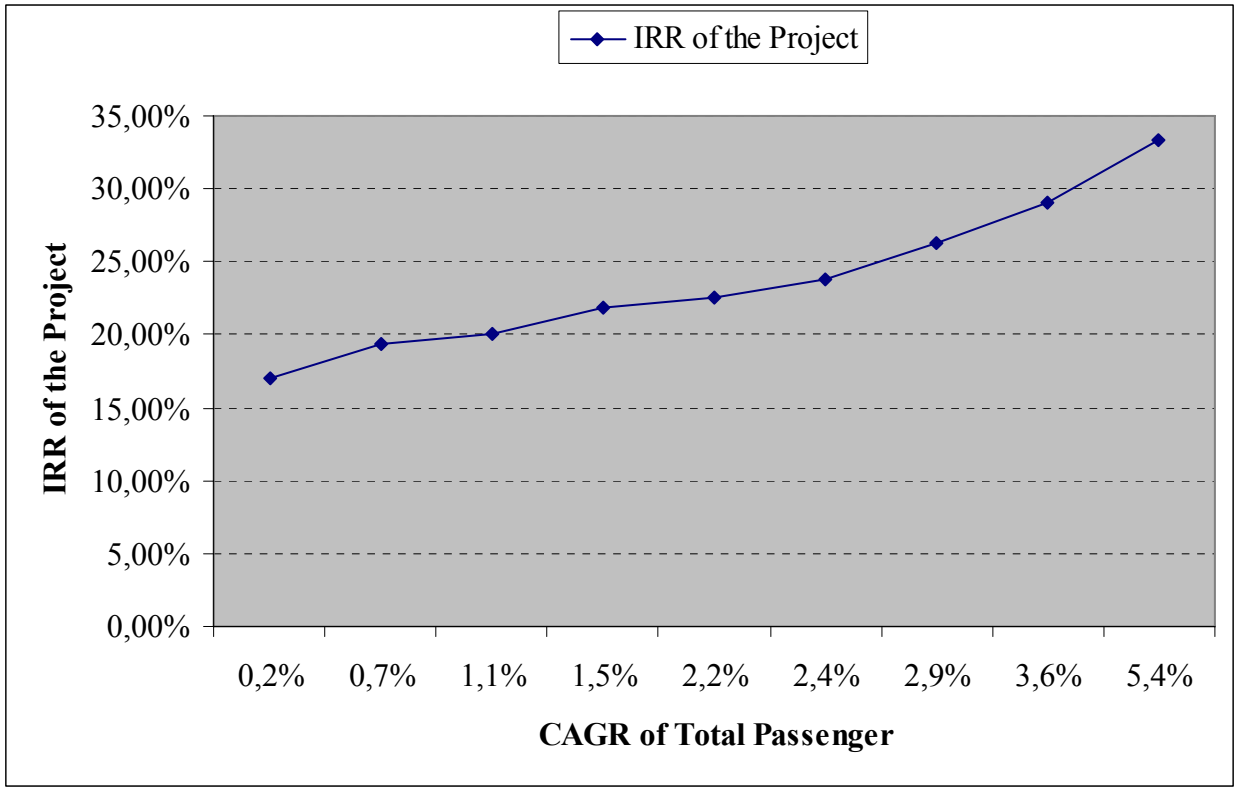
EUR ('000)	2014	2015	2016	2017	2018	2019	2020	2021
Operating Revenues	349.176	331.092	344.263	363.442	385.712	404.418	415.698	31.527
Operating Expenses	224.538	220.723	219.396	225.628	234.213	241.493	249.912	10.943
EBITDA	124.638	110.369	124.867	137.814	151.499	162.925	165.786	20.585
Amortization and depreciation	22.889	22.953	23.021	23.093	23.726	24.371	23.574	1.780
EBIT	101.749	87.416	101.846	114.722	127.772	138.554	142.212	18.805
EBIT + depreciation	124.638	110.369	124.867	137.814	151.499	162.925	165.786	20.585
Interest on cash accounts	7.136	6.604	6.047	5.327	3.221	3.944	5.047	6.321
Capital investment	-3.910	-3.985	-4.057	-4.130	-4.205	-4.280	0	0
Corporate tax	-8.299	-11.620	-11.191	-36.852	-22.854	-26.538	-27.228	-26.505
Net Cash inflow	119.565	101.368	115.666	102.159	127.661	136.052	143.605	400

IRR
29,06%

Total number of passenger is the most important independent variable in the linear regression. IRR of the Project Company is changing with the overall growth of the passenger. In the base case it is stated that the IRR of the project is 29.06 %. Below figure 11. summarises the change of IRR with CAGR of total passenger. If all other parameters stay the same as in the business model, CAGR of 0.2 % increase is still adequate for the project. The reason is that 0.2 % CAGR increase in passenger results in 17 % IRR which is bigger than 7.25 % is the interest rate of the syndicated credit.

However the model is highly related to the change of the passenger variable. When passenger compound growth reaches to 5.4 %, IRR of the project becomes 33 %. On the other hand, when passenger compound growth drops to 0.2 %, IRR of the project becomes 17 %.

Figure 11. IRR Sensitivity Related to CAGR of Total Passenger



So that, if the air traffic to IST and from IST increases, the company as expected increase its profitability and IRR of the project. The project finance model and the realized values of the IST from 2006 to 2008 are sensitive to the passenger figures.

5. CONCLUSION

This project finance research examined for the IRR of the Project Company that is leaseholder of Istanbul Atatürk Airport at the date of June 2005. With the help of the projected cash flows, and the realized cash flows covering the starting years of the project time, project finance research is aimed to reach any significant relationship between parameters with airport operators' financials.

One of the conclusions is that linear regression including total number of passenger has high level of R square. That makes total number of passengers to be the most critical parameter in the project finance process. In airport operator sector, parameters different than passenger parameters directly or indirectly related to the passenger. Such as number of aircraft, duty free per pax spending paramaters that are the multipliers of greater revenue generating units, are directly related to the amount of passenger. In the business modeling of airport operator and master plans of any airport, forecasting or targeting total number of passengers is the done at the starting of the project in order to reach desired IRR of the project.

As in the case of project financing, 3.6 % CAGR increase of total passenger is chosen as base scenario by reference to the researches of ACI, WTTC and IATA. As the CAGR of total passenger decreases, IRR of the project is also subject to decrease within. In the base case it is stated that the IRR of the project is 29.06 %.

Another conclusion is related with the financial covenants of project finance credit. In a project finance transaction, syndicated creditors put some obligatory financial covenants that are used widespread. In the base case of the scenario, the Project Company fulfills the requirements of minimum ADSCR and LLCR. However,

when the project IRR lowers with the decrease of the passenger, some other requirement is become the issue. According to the project finance modeling, 2.5 % CAGR increase of total passenger case is the border for fulfilling requirements of distribution lock-up ratios. Below 2.5 % CAGR, the creditors withdraw the principal of the credit partially. As creditors are having higher priority than sponsors of the project, principal payments come before the dividend payments. However, in the base scenario, Project Company fulfills its obligations.

BIBLIOGRAPHY

Acar M. C., The Build Operate Transfer Model For Aerodrome Terminal Buildings, Directorate General of Civil Aviation, 2009

Airport Economics Manual, International Civil Aviation Organization Publications, Second Edition, 2006

Annual Review of Civil Aviation 2005, ICAO, 2006

Boeing Commercial Airplanes, Current Market Outlook 2009 – 2028, 2009

DHMI 2008 yılı ücret tarifesi, DHMI Genel Müdürlüğü, Ankara, 2008

DHMI 2009 yılı ücret tarifesi, DHMI Genel Müdürlüğü, Ankara, 2009

DHMI İstatistik yıllığı 2008, DHMI Genel Müdürlüğü, Alban Tanıtım, 2009

Doganis, R., The Airport Business, Routledge, London, 1992

Gillen D., Airport Economics, Policy and Management: The European Union, 2006

Guzhva, V.S., Bazargan, M, and Byers, D., Determinants of Financial Health of U.S. General Aviation Airports., Journal of Airport Management, Forthcoming, 2007

Hainz C., S. Kleimeier, Project Finance as a Risk-Management Tool in International Syndicated Lending, 2006

Hoerter S., The Airport Management Primer, South Caroline, 2001

Istanbul Istatistikleri (Ocak-Aralık 2008), Istanbul Kültür ve Turizm Müdürlüğü, 2009

Jeong J., An investigation of operating cost of airports: focus on the effects of output scale, The University of British Colombia, 2005

Kamp V., H. M. Niemeier, Can We Learn From Benchmarking Studies of Airports and Where do we Want to go From Here?, University of Applied Sciences Bremen, Paper No. 28, 2007

Kaya, E., Havaalanlarında Yap İslet Devret Uygulamaları: Antalya ve Atatürk Havalimanlarındaki Uygulamaların Degerlendirilmesi, Eskisehir: Anadolu Üniversitesi Yayınları No: 1649, Sivil Havacılık Yüksekokulu Yayınları No:13., 2005.

Kleimeier S., W. L. Megginson, Are project finance loans different from other syndicated credits?, The University of Oklahoma, 2000

Kupfer F., F. Lagneaux, Economic Importance of Air Transport and Airport Activities in Belgium, National Bank of Belgium, 2009

Müller J., T. Ülkü, J. Živanović, Privatization, restructuring and its effects on performance: A comparison between German and British airports, University of Applied Sciences Bremen, Berlin School of Economics and Law (HWR), International University of Applied Sciences in Bad Honnef, Bonn, 2009

Özenen C. G., Havaalanı Yatırımlarında Özellestirme Dünyadaki Uygulamalar ve Türkiye için Öneriler, DPT Uzmanlık Tezi (Yayın No: DPT: 2666), Ankara, 2003.

Poole R. W., Guidelines For Airport Privatization, How-To Guide No. 13, 1994

Republic of Turkey Prime Ministry Investment Support and Promotion Agency, Investors' Guide For Turkey, 2008

Shulte S., Financing Airport Infrastructure – the Fraport Perspective, May 2009

TAV Havalimanları Holding A.Ş. and its' subsidiaries Consolidated Financial Statements as at 31 December 2006

TAV Havalimanları Holding A.Ş. and its' subsidiaries Consolidated Financial Statements as at 31 December 2008

TAV Airports Holding Management Presentation – July 2009, 2009

Transport Operational Program 2007 -2009, Ministry of Transport, Ankara, 2007

Travel & Tourism Economic Impact 2009 – Turkey, World Travel& Tourism Council, 2009

Tretheway, M., I. Kincaid, Competition between airports in the new Millennium: what works, what doesn't work and why, 8th Hamburg Aviation Conference, 2005

Understanding Airport Business, Airport Council International, 2006

Wells, A. T., S. B. Young, Airport Planning and Management, USA, McGraw-Hill, 2004.

Wensveen J. G., Air Trasportation, Ashgate Publishing Company, 2007

Vasigh B., M. Haririan, An Empirical Investigation of Financial and Operational Efficiency of Private versus Public Airports, Journal of Air Transportation, 2003

Vogel H. A., Privatisation and Financial Performance of European Airports, University of Westminster, London, 2006

Vural, O., Türkiye Sivil Havacılık Endüstrisi Ekonomik ve Yapısal Analiz, Ulastırma Bakanlıgı, Ankara, 2001

3065 Sayılı Katma Deger Vergisi Kanunu, Ankara, 1984