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DEPARTMENT OF MARITIME BUSINESS ADMINISTRATION
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MASTER THESIS

DETERMINANTS OF CAPITAL STRUCTURE: AN
APPLICATION ON BORSA ISTANBUL TRANSPORTATION
INDEX

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DECLARATION

I hereby declare that this master thesis titled as “**Determinants of Capital Structure: An Application on Borsa Istanbul Transportation Index**” has been written by myself in accordance with the academic rules and ethical conduct. I also declare that all materials benefited in this thesis consist of the mentioned resources in the reference list. I verify all these with my honour.

.../.../.....

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ABSTRACT

Master Thesis

Determinants of Capital Structure: An Application on Borsa Istanbul Transportation Index

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Transportation is an important component of economic development as it provides a remarkable contribution to the international supply chains, network integration, trade and other related globalized services. Maritime transportation solely carries 90% of the global freight trade worldwide.

The aim of this study is to examine how the determinants of capital structure affect the financing decisions of the firms operating in transportation industry in Turkey. Firms listed on Borsa Istanbul Stock Exchange Transportation Index have been analyzed by using panel data analysis for the period of 2002-2013. According to the findings, “Tangibility” and “Size” are significantly and positively associated with long-term leverage, supporting trade-off theory. Additionally, results show the significant effects of corporate governance practices, specifically board size, board independence and institutional ownership on capital structure decisions.

Keywords: Capital Structure, Corporate Governance, Transportation Industry, Turkey

ÖZET

Yüksek Lisans Tezi

**Sermaye Yapısını Etkileyen Faktörler: Borsa İstanbul Ulaştırma Endeksinde
Bir Uygulama**

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Ulaştırma; uluslararası tedarik zinciri, ağ entegrasyonu, ticaret ve diğer ilgili bir çok alanda sağladığı katkılardan dolayı, ekonomik gelişmenin önemli bir bileşenidir. Denizyolu taşımacılığı küresel ticaret unsuru olan yüklerin %90'ını tek başına taşımaktadır.

Bu çalışmanın amacı, sermaye yapısı faktörlerinin Türkiye’de faaliyet gösteren ulaştırma işletmelerinin finansal kararlarını nasıl etkilediğinin incelenmesidir. Borsa İstanbul Ulaştırma Endeksinde işlem gören 11 adet ulaştırma işletmesi, 2002-2013 yıllarını kapsayacak şekilde panel veri analizi ile incelenmiştir. Çalışmanın bulgularına göre, “Maddi Duran Varlık Yoğunluğu” ve “İşletme Büyüklüğü” ile “Uzun Vadeli Borçlanma Oranı” arasında anlamlı ve pozitif bir ilişki bulunmuştur. Bu sonuç “Dengeleme Teorisini” desteklemektedir. Ayrıca elde edilen sonuçlar, kurumsal yönetim uygulamalarının, özellikle yönetim kurulu büyüklüğü, yönetim kurulu bağımsız üye sayısı ve kurumsal sahiplik yoğunluğunun sermaye yapısı kararlarında anlamlı bir etkisi olduğunu göstermektedir.

Anahtar Kelimeler: Sermaye Yapısı, Kurumsal Yönetim, Ulaştırma Sektörü Türkiye

**DETERMINANTS OF CAPITAL STRUCTURE: AN APPLICATION ON
BORSA ISTANBUL TRANSPORTATION INDEX**

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LIST OF ABBREVIATIONS

AEA	The Association of European Airlines
ASA	Airport Services Association
BIST	Borsa Istanbul Stock Exchange
BOAC	British Overseas Airways Corporation
BoD	Board of Directors
BRSA	Banking Regulation and Supervision Agency
CEO	Chief Executive Officer
CIS	Commonwealth of Independent States
CMB	Capital Markets Board
CRR-CRD IV	Capital Requirements Regulation and Directive
CRSP	Center for research in Security Prices
DWT	Deadweight
EBIT	Earnings Before Interest and Tax
ECGI	European Corporate Governance Institute Index of Codes
EMEA	Europe, Middle East and Asia region
EU	European Union
FGLS	Feasible Generalized Least Squares
FIATA	International Federation of Freight Forwarders Associations
G20	The Group of Twenty Finance Ministers and Central Bank Governors
GDP	Gross Domestic Product
GDP-PPP	Gross Domestic Product – Purchasing Power Parity
GMM	Generalized Method of Moments
IATA	International Air Transport Association
IATA/IGHC	International Air Transport Association’s International Ground Handling Council
ICS	International Chamber of Shipping
IMF	International Monetary Fund
IPO	Initial Public Offering
IRRC	Investor Responsibility Research Center
IRU	International Road Transportation Union

ISE	Istanbul Stock Exchange
ISIC	International Standard Industrial Classification of All Economic Activities
LMAS	Labor Market Activity Survey
LODER	Logistics Association in Turkey
M&M	Modigliani and Miller
MIMIC	Multiple Indicators and Multiple Causes
NLSY	National Longitudinal Survey of Youth
NPV	Net Present Value
NYSE	New York Stock Exchange
OECD	The Organization for Economic Co-operation and Development
OLS	Ordinary Least Square
PSID	Panel Study of Income Dynamics
PV	Present Value
REIT	Real Estate Investment Trust
ROA	Return on Assets
ROE	Return on Equity
SITA	Airlines Worldwide Telecommunications and Information Services
SME	Small Manufacturing Enterprise
THY	Turkish Airlines
TIACA	International Air Cargo Association
TUSİAD	Turkish Industry and Business Association
UK	United Kingdom
US	United States
U.S.A.	United States of America
USAŞ	Uçak Servisi A.Ş.
WACC	Weighted Average Cost of Capital
YÖK	Board of Higher Education in Turkey

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INTRODUCTION

Transportation is one of the vital components of economic development considering its contribution to the global commodity and supply chain, network integration, trade and other related globalized services. After the industrialization that revealed firstly in the UK, and subsequently overspread all around the world, every kind of products are distributed to the any kinds of markets rapidly by the transportation modes.

Seaborne freight transportation is one of the leading transportation modes serving more than 90% of global trade worldwide with a massive volume of cargo. Considering the economies of scale, it is the most economical one among other modes (Syrioupoulos and Tsatsaronis, 2012: 3). However, owning and operating the ships also carry many financial problems as the industry is highly capital intensive, and also since the sector is directly linked to the global economy, it is one of the most volatile and cyclical sectors (Stopford, 2009: 118).

Considering other subsectors of transportation industry, civil aviation industry is the main transportation mode especially for passenger transportation instead of freight. However, it has the same patterns with seaborne transportation since the aircrafts and the components of airport terminals are also capital intensive.

Rail and road modes are the main elements for the land transportation enabling door-to-door transportation with a consequence of intermodal approach. Additionally, massive liquid and gas movement is possible thanks to the pipelines.

The financing needs and the investments projects should be conducted continuously in transportation. As indicated by Brauner (1994); growing fleet age, higher insurance and maintenance costs of the older vehicles, technological developments and quality standards, rivals with an increasing numbers and thus tough competition, and expectations on increased demand make the future projects and investments vital.

Firm characteristics and macro economical variables might play a major role on capital structure decisions for the firms in this industry. According to the literature, it is seen that determinants of capital structure decisions have highly importance to increase firm value and also shareholder wealth.

Firms operating in this industry, especially ship owners are much more negatively affected in 2008 financial crisis, since they are more leveraged relative to the other sectors, and therefore they initially prefer debt financing if their internal funds are not sufficient, supporting the pecking order theory as asserted by Drobetz (2011). According to Mayer and Brown (2014), due to the new regulations after this crisis, banks turned off the credits taps and applied strict financial covenants to the risky industries, thus the firms, especially ship owners whose internal funds are not sufficient, have begun to seek alternative financing sources for their capital needs.

Capital markets provides broader range of financing instruments, however, capital markets appreciate the good corporate governance system as it reduces the agency problems, protects the external investors and also provides sustainability for the firms (Andreou et al, 2014: 59).

In light of the above explanations, the aim of this study is to examine how the determinants of capital structure including corporate governance practices affect the financing decisions of the firms operating in transportation industry in Turkey.

There are many studies and dissertations on determinants of capital structure for the Turkish firms; however it is seen that transportation industry hasn't been examined, also few studies could be detected for the transportation companies operating in other countries. Therefore, the motivation of this study is to contribute to the empirical evidences on the determinants of capital structure of transportation companies in Turkey.

To analyze the determinants of capital structure of the companies in BIST Transportation Index, a panel data analysis is applied by using Stata 11 statistics software, for the period of 2002-2013.

According to the findings, tangibility and size are significantly and positively associated with long-term leverage, supporting trade-off theory. Large firms with tangible assets encounter less costs of financial distress and may borrow more according to tradeoff approach, on the other side; the pecking order approach defends the importance of profitability, arguing that profitable firms use less debt as they are financed internally. (Brealey et al., 2011: 462-463). This finding is consistent with many studies as Chittenden et al. (1996), Michaelas (1999), Wald (1999), Booth et al

(2001), Hall et al. (2004), Huang and Song (2006), Frank and Goyal (2009), Kayo and Kimura (2011), Sheikh and Wang (2012).

Transportation industry is relatively capital intensive and the main element that generate the earnings are vessels, and ports for the maritime sector, aircrafts, terminals and handling equipment for civil aviation sector, trucks for road sector, and locomotives, terminals and other equipments for railways, and also the pipeline infrastructure and the handling equipments are highly tangible assets. Therefore, these assets are generally used as collateral to obtain bank loans, and encourage the firms to increase their leverage level.

Results on profitability and corporate governance differ when capital structure is defined as total liabilities to total assets and long-term liabilities to total assets. However, it is reported that corporate governance practices, specifically board size, board independence and institutional ownership of transportation firms affect the capital structure decisions significantly.

To highlight the implications of this study, the insignificance is noteworthy instead of significance of the determinants found. In other words, according to the results, there are no relationship between the long-term leverage and “Profitability”, “Liquidity”, “Market-to-book”, “Non-debt tax shield”, and “Volatility” for transportation companies in BIST Transportation Index.

The main limitation of this study is that transportation firms in Turkey are generally closed to the public, especially ship owners and freight transportation companies. Therefore, the sampling of this study is consisted of Borsa Istanbul Stock Exchange (BIST) Transportation Index.

This study is divided into 4 chapters. In the first chapter, the position of the transportation industry is defined in terms of the United Nations (U.N.)’s economic classification. Afterward, transportation systems are evaluated from the economical perspective. Then, transportation modes and their economical and operation implications are covered. In the second part of this chapter it is begun with describing the importance of the sound financial structure for the firms, and then the financial structure of the firms operating in this industry is presented. Subsequently, financing decisions, and the need for alternative financing sources are covered and

finally, this chapter ends with the literature review related with the financial structure of the transportation industries.

Second chapter focuses on the relationship between cost of capital and capital structure, and furthermore capital structure theories accepted by the finance community are reviewed in detail. Then, the determinants of capital structure including corporate governance practices are presented with their general implications. This chapter also reviews empirical studies and dissertations on the determinants of capital structure of the firms located and operated in Turkey.

Third chapter includes the analysis of Borsa Istanbul Transportation Index and begins with the aim of the study. Subsequently, research data and methodology to be used are explained in detail. Then, hypotheses development is conducted based on the current literature, and also research model is presented. This chapter ends with giving some information on the general transportation outlook of Turkey, which is considered a research area for this study.

Last chapter includes the empirical analysis of how determinants of capital structure affect firm financing decisions. It begins with summarizing the descriptive statistics, and correlation matrix of the data used in this study, and subsequently results of the panel data is presented.

Finally, this thesis ends with the conclusion by interpreting the results, describing the limitations and future research directions.

CHAPTER ONE

TRANSPORTATION INDUSTRY AND FINANCIAL STRUCTURE:

LITERATURE REVIEW

1.1. TRANSPORTATION INDUSTRY

Movement of goods, people, and information is one of the important concerns of human being. Remarkable increase in mobility and accessibility has supported the modern economic development. Due to the liberalization that is emerged since 1950s, global labor and sources have been begun to use more efficiently, and movement of people and freight and their related information thus play a major role in this process (Rodrigue et al., 2009: 1).

As a service industry, transportation can be considered a key factor for its social, economical and even environmental impacts. International classifications can be used to highlight which components constitute the transportation industry. International Standard Industrial Classification of All Economic Activities (ISIC Rev. 4) is prepared by the U.N. for classifying economic data. U.N. Statistics Division describes ISIC as following;

Wide use has been made of ISIC, both nationally and internationally, in classifying data according to kind of economic activity in the fields of production, employment, gross domestic product and other statistical areas. ISIC is a basic tool for studying economic phenomena, fostering international comparability of data, providing guidance for the development of national classifications and for promoting the development of sound national statistical systems.

ISIC Rev.4 is demonstrated as following:

Table 1: ISIC Rev.4 Classification

Level	Section, Division and Groups	
A	Agriculture, forestry and fishing	
B	Mining and quarrying	
C	Manufacturing	
	30.	Manufacture of other transport equipment

		30.1.	Building of ships and boats	
		30.2	Manufacture of railway locomotives and rolling stock	
		30.3	Manufacture of air and spacecraft and related machinery	
		30.4	Manufacture of military fighting vehicles	
		30.5	Manufacture of transport equipment n.e.c.	
D	Electricity, gas, steam and air conditioning supply			
E	Water supply; sewerage, waste management and remediation activities			
F	Construction			
G	Wholesale and retail trade; repair of motor vehicles and motorcycles			
H	Transportation and storage			
	49	Land transport and transport via pipelines		
		49.1	Transport via railways	
		49.2.	Other land transport	
			49.2.3	Freight transport by road
	50	Water Transport		
		50.1	Sea and coastal water transport	
		50.2.	Inland water transport	
	51	Air Transport		
		51.1	Passenger air transport	
		51.2	Freight air transport	
	52	Warehousing and support activities for transportation		
		52.2	Support activities for transportation	
			52.2.1	Service activities incidental to land transportation
			52.2.2	Service activities incidental to water transportation
			52.2.3	Service activities incidental to air transportation
			52.2.4	Cargo handling
		52.2.9	Other transportation support activities	
I	Accommodation and food service activities			
J	Information and communication			
K	Financial and insurance activities			
L	Real estate activities			
M	Professional, scientific and technical activities			
	74	Other professional, scientific and technical activities		
		74.9	Other professional, scientific and technical activities n.e.c.	
			74.9.0	Other professional, scientific and technical activities

1.1.1. Transportation Systems

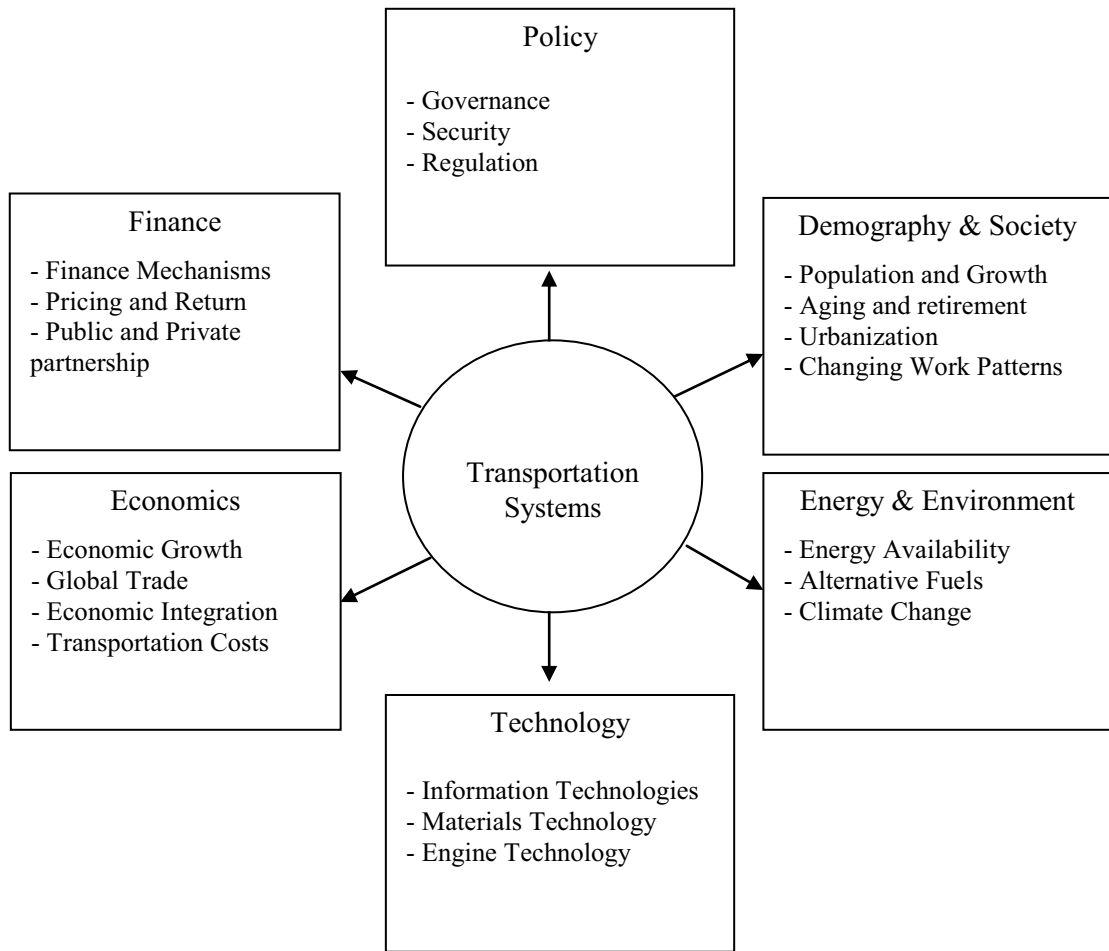
As of the humans' transforming from being the agrarian society into an industrial one, massive productions have been performed, and the freight that produced from this process needs to be transported from the origin itself to the destinations where the demand exists. Therefore, the global trade, and accordingly the global economy, is explicitly linked to this industry (Sinha and Labi, 2007: 1).

Freight transportation process begins with a buying–selling agreement that determining the specific transport criteria including type of the product(s), financial terms, delivery requirements and transport systems (Lun et al., 2010: 130). When transport systems are conducted efficiently, economic and social benefits, which affect the entire economy, are provided. Otherwise, when they are conducted deficiently, economic costs due to the missed or decreased opportunities may occur. Additionally, social and environmental load, which cannot be ignored are carried by the transport (Rodrigue et al, 2009: 83). As indicated by Coyle et al. (2000), an efficient and inexpensive transport system contributes to greater competition in the marketplace, greater economies of scale in production, and reduced prices of goods.

Considering what the main drivers of transportation are, Rodrigue (2010) categorized them into 6 major categories. Each category plays important role on transportation systems, and, as there are too many interrelationships, the connection of these systems bears the vitality for the general community.

These drivers are visualized as follows:

Figure 1: Drivers of Transportation Systems



Source: Rodrigue, 2010:5

Freight transportation is vital component of economic development (Leinbach and Capineri, 2007: 1), and the main element supporting global commodity and supply chains, complex and functionally integrated networks of production, trade and service activities, which covers all processes of production from the producing the raw materials to market distribution and after market services as indicated by Nijkamp (2003).

Should the subsectors of this industry is considered; shipping, civil aviation, road, and railway sectors are the main contributors respectively. Deregulation and privatization policies of transport industry have led governments to quit the management, operations and ownership of the transport vehicles, airports and ports. This situation has enabled to reorganize the both national and international transportation sectors (Rodrigue et al. 2009: 96). In this context, major commercial actors can be summarized as follows:

Table 2: Major commercial actors in freight distribution

Transport Sector	Function
Seaborne Transportation Companies	Control long-distance segments of the global freight distribution linking major markets. Highly capital-intensive industry.
Global port operators	Control important intermodal infrastructures (terminal) within the world's largest container ports. Have strong linkages with maritime shipping companies.
Port authorities	Manage and plan port infrastructures. Tend to lease the operation of terminals. Important intermediaries for regional distribution (hinterland).
Maritime lock and canal operators	Ensure the operation of strategic passages in global and national distribution. This mainly includes the Panama and Suez Canals and the St. Lawrence Seaway.
Rail and rail terminal operators	Strategic inland freight carriers transporting a wide array of raw materials and commodities. Responsible for many of the transshipments between rail and road, particularly for containerized freight.
Trucking industry	Control vast and diverse assets that include critical segments of freight distribution in all economic sectors.
Third-party logistics providers	Important managerial and organizational skills within supply chains. Often acts as brokers between transport customers and service providers.
Air freight transport companies and air freight terminals	Important assets for the rapid distribution of high value-added freight.
Distribution centers	A crucial element of modern supply chains. Perform tasks such as packaging, labeling and the consolidation of shipments to customers.

Source: Rodrigue et al., 2009: 97

Considering what affects the transportation demand, several variables show up. As indicated on Quick Response Freight Manual (1996) by Cambridge Systematics, factors behind freight transport demand can be summarized as follows:

Table 3: Factors behind the transportation demand

Economy	General derived demand impact. Linked with Global Domestic Product (GDP). Function of the structure of the economy in terms of
Industrial Location	Effect on ton-km and on modal choice.
Spatial Structure	Effect on ton-km. Function of international trade structure. Containerization and intermodal transportation
International Agreements	Both concerning trade and transportation. Economic specialization. Increased trans border traffic. Simplified custom procedures.
JIT Practices and Warehousing	Decreased inventories. More shipments. Smaller line hauls. Shift to faster and more reliable modes. Use of third-party logistics providers.
Strategic Alliances	Between carriers, shippers and often producers and retailers. Lower distribution costs
Packaging and Recycling	Increased transportability of products. Lower freight density. Reverse distribution.
Regulation and Deregulation	Increased competition, level of service and lower costs. Growth of intermodal transportation.
Fuel costs, Taxes and Subsidies	Large and volatile cost components, specifically for energy intensive modes. Preferred mode or carrier.
Infrastructure and Congestion	Efficiency, operating costs and reliability
Safety and Environmental	Operating speed, conditions and costs. Capacity and weight limits.
Technology	Containerization, double staking, automation and robotics, handling and interchange systems and automated terminals. Information

Source: Cambridge Systematics, 1996,

http://www.fhwa.dot.gov/planning/tmip/publications/other_reports/freight_manual/quick.pdf,

16.06.2014

1.1.2. Transportation Modes

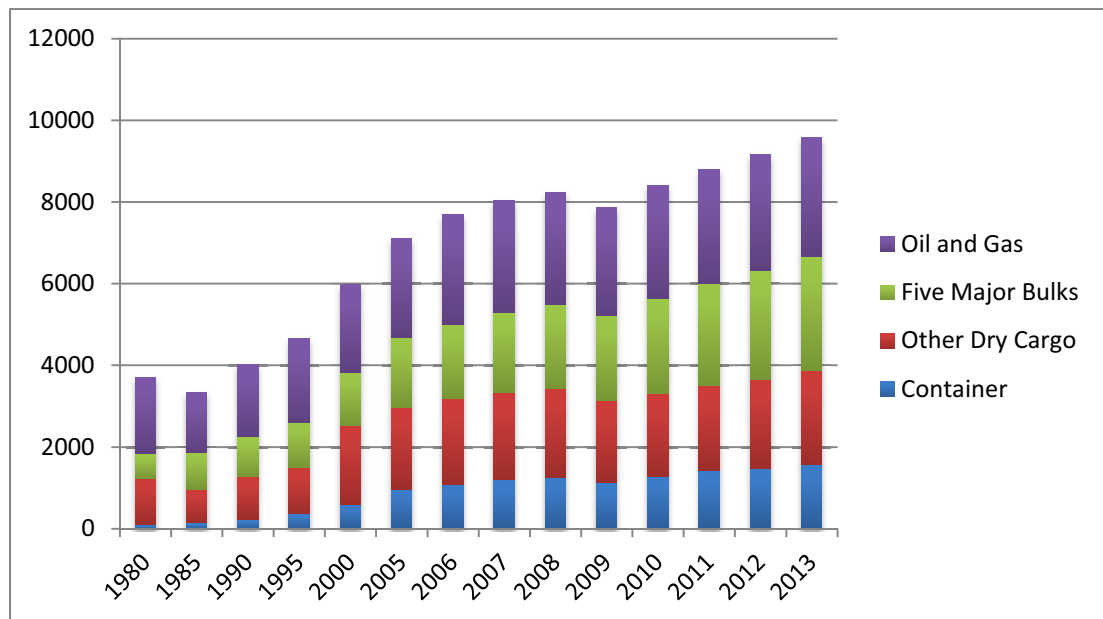
1.1.2.1. Seaborne Transportation

Shipping is definitely the oldest transportation mode for any cargo with larger quantities (Cerit, 2013: 3-4). From prehistoric times, human beings living along coastlines, rivers or lakes have tried to use several watercrafts for the transportation of their goods, as without complex engineering, the waterways provided by the natural corridors could be used for the transportation of larger quantities (Heidbrink, 2012: 34).

Global trade has grown dramatically over the last few decades (Fan et al., 2012: 133). On this aspect, the maritime industry constitutes by far the most significant and dominant transportation sector worldwide, serving more than 90% of global trade, through the transfer of massive volumes of cargo (Syrioupoulos and Tsatsaronis, 2012: 3). According to the International Chamber of Shipping (ICS), there are currently over 50,000 merchant ships operating throughout the world, and carrying every kind of freight. Over a million seafarers are manned for the world fleet, which is registered in over 150 nations.

Seaborne trade has increasingly been developing year by year due to the globalization and cross-border trade that is a consequence of demand for the product whose purchasing cost is less than producing (Tamvakis, 2012: 52). Together with progress in trade liberalization in many countries, sea transport has become faster, more reliable and cheaper transportation mode (Sanchez et al. 2003). As it is seen on the figure below, containerization can be considered as a remarkable innovation that enables door-to-door transportation worldwide. Container shipping industry is one of the youngest and dynamic market segments in shipping. The establishment of world - embracing liner-shipping networks has accelerated the globalization processes and associated global production and logistics services (Nottebom, 2012: 259).

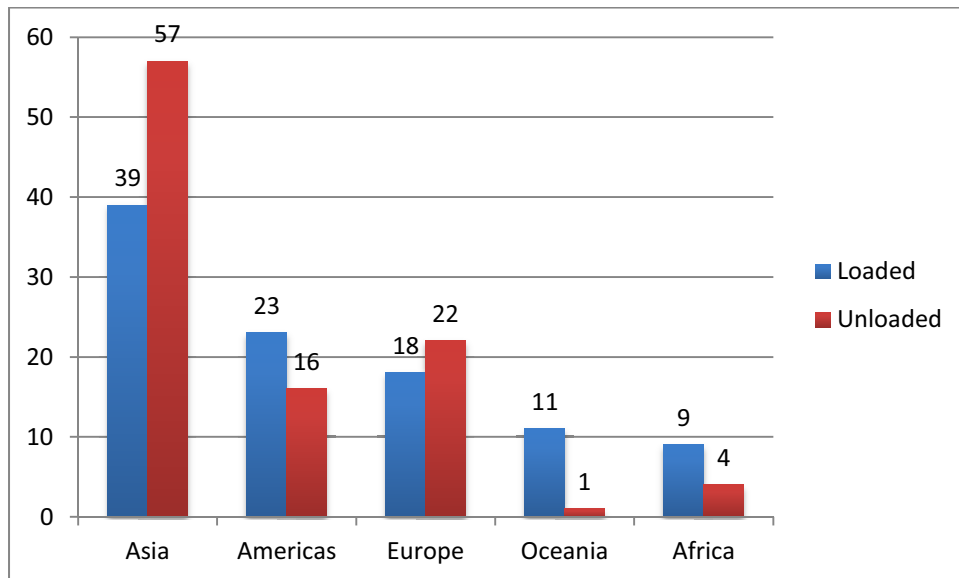
Figure 2: International seaborne trade, selected years (millions of tons loaded)



Source: UNCTAD, 2013, http://unctad.org/en/publicationslibrary/rmt2013_en.pdf, 15.07.2014

In this context, to focus on the routes of origin and destinations of the goods, it is seen that Asia region has major proportion on seaborne trade as indicated in the below figure:

Figure 3: World seaborne trade, by geographical region, 2012 (Percentage share in world tonnage)



Source: UNCTAD, 2013, http://unctad.org/en/publicationslibrary/rmt2013_en.pdf, 15.07.2014

Due to the financial crisis faced in 2008, seaborne trade sharply decreased as it is directly linked to the global economy. In other words, when the demand of the goods is decreased, its production gets slow due to the decreasing demand, and shipping is affected in the first place from this situation due to the supply surplus. As of the middle of 2008, shipping operators and stakeholders of the industry have suffered due to this unexpected financial crisis, and the sector is still trying to survive from this situation. According to the Danish Ship Finance Market Outlook (2014), market fundamentals are generally improving recently and freight rates, second hand values and new building prices seem to have bottomed out and are currently on a rising trend. However, as uncertainty still exists for the global economy, this balance is on slow steaming.

1.1.2.2. Air Transportation

The importance of transportation does not only depend on the handling of the goods, but also other factors bring it into the forefront. For instance, with the evolution of the aviation industry since the 1920s, people can easily be transported from one place to another in a short time period. Additionally, this industry makes a

significant contribution on employment, which is the major concern for both developed and developing countries for all long time.

Aviation industry also has an important role on global economy. Economic growth in developing markets has expanded passenger traffic, and also new routes have been launched by the leading airlines. As there are many airlines operating in the industry, the competition gets higher among them and they differentiate their services to draw the passengers' attention by increasing the quality of catering services presented on board, offering affordable prices etc. Additionally, fleet age and size is also one of the important factors that carry an airline one step further for the sustainability, and meeting the mandatory regulations.

According to the figures that presented by International Air Transport Association (IATA) as of 2013; over 3.1 billion people were carried for 49,871 routes to 3,864 airports in 25,332 aircrafts. Additionally, in this industry 58.1 million jobs for the communities, \$ 2.4 trillion in global GDP and \$ 6.4 trillion in world trade were supported. Furthermore, 52% of global tourists travelled by air. These figures proved the importance of aviation industry.

1.1.2.3. Railway Transportation

From the land transportation perspective, the most economical mode on land is conducted via railways. For the long distanced-transportation of raw materials, railways offer the best option considering the economies of scale. As asserted by Ballou (2003), railways offer *“expedited service to guarantee arrival within a certain number of hours; various stop-off privileges, which permit partial loading and unloading between origin and destination points; pickup and delivery; and diversion and re-consignment, which allow circuitous routing and changes in the final destination of a shipment while en route.”*

On the other side, internal costs of railway transportation are respectively high. At the beginning, the infrastructure of railways needs high volume of capital, and thus generally it is conducted by the governments of the countries in the first place, and handed over to the private sectors, and additionally superstructure and

operating management are handled by them. But some governments still undertake both construction and management due to some political or economical issues.

Railway transportation is the key factor for international multimodal transport which is “*the carriage of goods by at least two different modes of transport on the basis of a multimodal transport contract from a place in one country at which the goods are taken in charge by the multimodal transport operator to a place designated for delivery situated in a different country*” as indicated in the United Nations (UN) Convention on Multimodal Transport of Goods Article 1. After the evolution of containers, the handling is much more efficient, and door-to-door transportation has become the attractive including different modes with one contract, which prevents waste of time and money and also its environmental impacts cannot be ignored.

According to the Chopra and Meindl (2007), transit time by using railways can be so long due to low velocity, and thus railway is ideal for heavy and low-value shipments whose time sensitive are not a big deal. However, small, time-sensitive, short-distance or short-lead-time shipments are rarely transported by railways. Additionally, one of the other advantages of using railways is that railways reduce the traffic congestion on roads, and so do air, water, noise and land pollutions.

1.1.2.4. Road Transportation

Road freight transportation is the vital link between the origin of the goods and its last stop such as consumers, businesses and producers. Due to the flexibility of this mode, door-to-door transportation is conducted thoroughly. Trucks are the only way to reach all facilities that freight is handled. According to the figures of International Road Transportation Union (IRU), Road transport carries on average more than 90% of goods in value and more than 80% in inland freight volume, and carries more than 6,000 billion tonne-kilometres of goods per year in the European Union (EU), United States of America (USA), Commonwealth of Independent States (CIS), China and Japan alone. In modern economies, 85% of road freight tonnage is carried over distances of 150 km or less, for which there is no economically viable alternative, and less than 1% is carried over 1,000 km. Road freight transport is also a major job creator. It provides jobs to 6.5 million people in the EU and to nearly 9

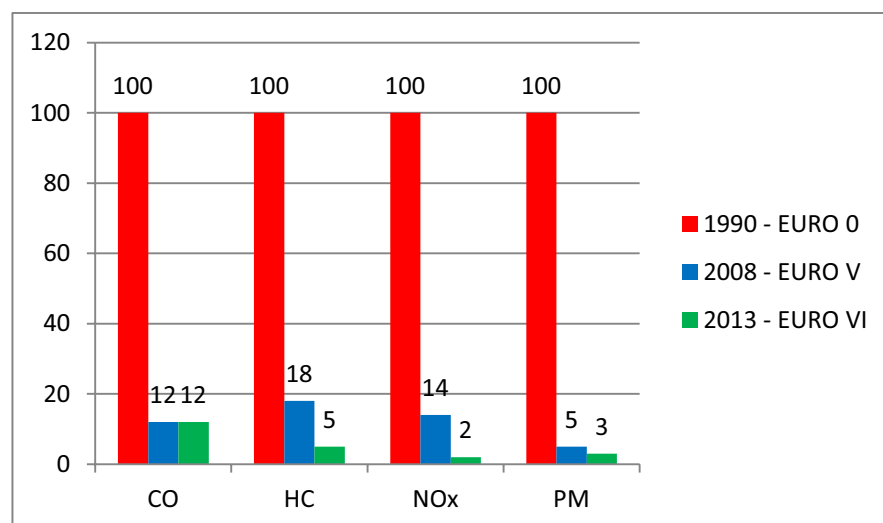
million in the USA. Many others earn their living in trucking- related industries, such as truck manufacturing, repairs, retail, leasing, insurance, public utility, construction, service, mining or agriculture.

The advantages of road transportation are summarized as follows (Lun et al., 2010: 127-128):

1. Trucks are the most flexible form of freight transport, and are able to provide “door-to-door” services to shippers.
2. For any journey, there are many alternative routes available.
3. The security of the cargo and the vehicle can be more easily monitored
4. Delivery on time is more certain and measuring performance is easier
5. Infrastructure is designed, built, and maintained by a government or other transport service operators, and payments for the infrastructure is spread over many users in the form of user charges such as a toll fee.

Owing to the trucking industry’s investment in new technologies, pollutants dangerous to the health of human being– carbon monoxide, hydrocarbons, nitrogen oxides and particulates – have been significantly reduced. Below figure illustrates this reduction for the Europe region.

Figure 4: Noxious emissions reduction for heavy commercial vehicles



Source: EU Commission (2013) <http://ec.europa.eu/transport/facts-fundings/statistics/doc/2013/pocketbook2013.pdf>, 05.05.2014.

Although this reduction is not in line for many countries, it might be inspiring for the whole industry as it is possible as long as the necessary precautions and preventions are conducted.

1.1.2.5. Pipeline Transportation

For the movement of liquids and gases, pipeline transportation is widely used mode in the world, and the pipeline is usually the lowest-cost mode for the transportation of these materials (Lun et al, 2010: 129). From the land transportation perspective, pipelines are very important and extensive mode of land transport. Oil and gas dominate the pipeline traffic as main products. However, domestic pipelines are also significant for the water transport of water, and rarely for the shipment of dry bulk commodities, such as coal in the form of slurry (<http://people.hofstra.edu/geotrans/eng/ch3en/conc3en/ch3c3en.html>, 22.07.2014).

Below table demonstrates the longest pipelines all around the world.

Table 4: Major Pipelines in the world

Pipeline	Length	Start	Finish
West-East Pipeline	5,410 miles	Xinjiang	Shanghai
Gasun Pipeline	3,100 miles	Bolivia	Brazil
Yamal-Europe Pipeline	2,608 miles	Siberia	Germany
Trans Saharan Pipeline	2,565 miles	Nigeria	Algeria
Trans Canada Pipeline	2,005 miles	Alberta	Quebec
Rockies Express Pipeline	1,678 miles	Colorado	Ohio
Transcontinental Pipeline	1,671 miles	Texas	New York
Trans-Mediterranean Pipeline	1,610 miles	Algeria	Italy
Northern Border Pipeline	1,391 miles	Canada	Chicago
Nord Stream Pipeline	759 miles	Russia	Germany

Source: Forbes (2011) <http://www.forbes.com/sites/williampentland/2011/06/17/worlds-longest-natural-gas-pipelines/>, 02.07.2014.

1.1.2.6. Intermodal Transportation

Intermodal transportation is related with the movement of goods in one and the same loading unit, which uses two or more modes without handling the goods themselves in changing modes (Lun et al., 2010: 137). This process involves several activities, actors and resources including complex technological and organizational complexity system (Konings et al, 2008: 13). As of the evolution of container transportation, and thanks to the technological development, integration of transportation modes is easily handled. Although each transportation mode has many advantages, each of them has also some limitation during the transportation process. Especially, from the supply chain perspective, the integration of the transportation modes becomes vital component for the efficiency and productivity (Rodrigue et al., 2009: 146-147).

Intermodal framework consists of ten key elements to explain the whole system. These are infrastructure, management of containers, new technology, operation of container terminals, transport operators, deregulation, external business environment, availability of logistics services, regional location and logistics security (Lun et al., 2010: 137).

1.2. FINANCIAL STRUCTURE OF THE TRANSPORTATION INDUSTRY: LITERATURE REVIEW

Financial structure refers the various types of financing approaches of the firm to obtain the necessary resources to keep and (or) expand its current business activities (Brealey et al., 2011: 846). Therefore the main problem that distinguishes the firms above from the others is how the firm employs the sources efficiently for their investment projects.

According to the survey that applied to the executives, directors and security analysts, 9 major factors show up on how these firms have reached to this success. These factors are: innovativeness, quality of management, long-term investment value, social responsibility, employee talent, quality of products and services,

financial soundness, use of corporate assets and effectiveness in doing business globally (Brigham and Ehrhardt, 2010: 4).

If a firm wants to increase their firm value and shareholder wealth, above attributions can be reached and obtained with sound financial structure.

Freight transportation generates a remarkable contribution on national GDP considering the consumption of higher goods and services, employment of many people, and also the tax revenue that the governments earn. Therefore it can be suggested that there is a bidirectional relationship and simultaneity between the economy and transportation, growing economic outputs enable growing amount of travel and vice versa (Sinha and Labi, 2007: 229).

The decision making process in financial management of transportation industry, substantially maritime companies, consists of three main components: investment referring to the market for newly built and secondhand vehicles and related infrastructure projects, financing associated with the markets for debt and equity capital and operation related with the freight market as asserted by Merikas et al. (2011).

Demand for freight transportation is projected to nearly double to 37.2 billion tons by 2035 (Kaduwela and Inbasekaran, 2012:1). Additionally, technological developments and increasing competition in the industry explicitly impact the financial environment as well. Therefore, due to this projection and new developments, firms operating in this industry need to continuously expand their current business activities by applying new investments, which might show up at a very high price both environmentally and financially as well unless they are not conducted in terms of the global economic conditions thoroughly.

According to the Mayer-Brown Report (2014); the situation of the environment after the financial crisis faced in 2008, financing of the investments via traditional approach bank loans cannot be obtained as easy as before due to the BASEL III rules and Capital Requirements Regulation and Directive (CRR-CRD IV) as banks try to restructure the current loans and new ones are much more restricted due to their overloaded balance sheets and as indicated by Andreou et al. (2014) that situation pushed the firms to seek alternative financing sources.

As indicated above, traditional bank financing is not easily obtained as same as before by the industry especially by the maritime firms. Thus, this pushed the firms to seek alternative sources to finance their investments and current business activities. As asserted by Syriopoulos and Theotokas (2007) capital markets are the most attractive financing sources for the transportation companies recently. However, if the firm applies to the capital markets, they need to have good corporate governance practices for the efficiency, increasing firm value and sustainability. According to Jensen and Meckling (1976), good corporate governance reduces the probability of agency problems. Agency problems might occur from either the separation of management and shareholders as indicated Jensen and Meckling (1976) or from the conflicts of interest between controlling and non-controlling shareholders as indicated by Bebchuk and Weisbach (2010).

In this context, when the literature is reviewed regarding the financial aspects of the transportation industries, it is seen that shipping sector is more investigated probably due to serving more than 90% of global trade. Subsequently, air transportation sector shows up that investigated by the researchers. Considering the financial management of industry in terms of literature, capital structure decisions and corporate governance practices seem to be the key factors. Therefore, literature has been reviewed by considering maritime companies and aviation companies as follows:

1.2.1. Studies on Shipping Sector

Drobetz et al. (2013) investigated the determinants of capital structure decisions using a sample consisting of 1442 firm-year observation of 115 global exchange-listed shipping companies covered in the Compustat Global database during the period between 1992 and 2010 to determine whether listed shipping companies follow a target capital structure. The data are on an annual basis and converted into US dollars. Companies included in their analysis are chosen upon the condition that they own and/or operate commercial ships. It has been indicated that the economic impact of asset tangibility is more pronounced than in other industries and it is positively related to corporate leverage, whereas profitability inversely

related to leverage. Additionally, it is asserted that leverage behaves counter-cyclically as demand and supply in the maritime industry are closely related to the macroeconomic environment leading to weak evidence for market-timing behavior. They also documented that during the economic recessions, the speed of adjustment after deviations from the target leverage ratio is lower. However, the capital structure adjustment speed for the maritime companies is generally higher compared with the Group of 7 (G7) benchmark sample.

Arvanitis et al. (2012) examined the capital structure of European shipping companies to identify the determinants that affect capital structures of this sector, and to find out the ideal capital structure ratio. They examined the determinants by using static (fixed effect method and FGLS) and dynamic (GMM Methods) econometric models, using data from the financial statements of 32 listed European shipping companies for the period 2005-2010. They found a positive relationship arises between tangible assets and tax benefits (arising from sources other than borrowing) against leverage, while leverage is negatively affected by size and profitability.

Randoy et al. (2003) examined how corporate governance practices affect the profitability of maritime firms. They used “founding family Chief Executive Officer (CEO)”, “board ownership” and “board independence” as corporate governance variables. They tested their hypotheses by using multivariate ordinary least squares regression on a 3-year sample of 32 listed maritime firms from Norway and Sweden, and compared to the results of the same hypotheses examined on a sample of 96 manufacturing firms. Their study suggested that designs of good corporate governance practices should vary for the maritime and manufacturing firms. They concluded that there is significant positive relationship between profitability and founding family CEO for the maritime firms compared with a non-founding family CEO. They also asserted that a high level of board independence in maritime firms enhances profitability. On the other side, they could not find significant relationship between the level of board ownership and profitability for the maritime firms contrary in opposition to the agency theory assumptions. However, they found that board ownership control was significant in the sample of manufacturing firms.

Andreou et al. (2014) investigated how corporate governance practices affect the financial management decisions such as earning management, and sub-optimal

investments, and firm performance for maritime firms. To do that, corporate governance variables such as insider ownership, board size, presence of corporate governance committees, the percentage of director's serving on the boards of other firms and CEO duality have been examined. Their sample consisted of maritime firms with business activities in deep-sea foreign transportation of freight, falling into several categories such as bulk, container, general cargo, tanker, offshore, and vehicle carrier, listed in the US over the period 1999–2010 and data were obtained from Compustat database. Depending on the regression model specification employed, the final sample with full information for analysis ranges from 26 to 32 firms representing 97 to 114 firm-year observations. They found that insider ownership is positively associated to earnings management, and board size is negatively related to over-investment. They also indicated that board size, insiders' ownership, and CEO duality are all significant with firm operating performance. They suggested that a large board size could be considered as an optimal value-maximizing outcome for the maritime industry. They also asserted that to reduce the agency related risks, and to increase the credibility on the financial markets, maritime firms should dedicate themselves to improve their corporate governance practices as maritime companies have recently begun to use the financial markets for their capital needs that needed to be more sound governance and transparency. Andreou et al. (2014) also found that knowledge and expertise are value-enhancing attributes in the board of maritime firms as maritime firms appoint directors that may sit on the boards of other firms. Finally, their results on CEO Duality revealed that being both a CEO and chairman of the board may not be a harmful practice in the maritime industry.

Syriopoulos and Tsatsaronis (2012) investigated the impact of CEO duality/separation on the financial performance of shipping firms. The data set of their study consisted of 43 listed shipping firms whose operating business revenues is related to deep-sea ocean transportation activities, in NASDAQ and New York Stock Exchange (NYSE). The time-span covered 2002 to 2008, using annual observations. The sources of the data gathered from corporate annual reports, financial statements and Initial Public Offering (IPO) prospectuses, firm websites, press releases, and also they considered any relevant information from the exchanges where the sample firms

are listed. They produced two models by considering two dependent variables separately as Return on Assets (ROA), and Return on Equity (ROE). Both models consisted of same independent variables as “CEO Duality”, “Shareholders Equity over Total Assets”, “Debt Ratio”, and “Firm Size”. They followed panel data approach employing ordinary multiple regression techniques to explain the relationship between those variables. According to the findings that are consistent with both models, financial performance of shipping firms is negatively affected by CEO duality. Therefore, they asserted that CEO Duality is not a good corporate governance practice as supported by agency theory. They explained this result by supporting other empirical results as shareholders’ best interests can be abused by potential CEO monitoring and control by the Chairman and the Board. They finished their study by emphasizing the importance other corporate governance practices such as the number of independent Board members, or the ownership structure (including share holdings by top management) and indicating them as future research direction.

Tsionas et al. (2012) investigated the issue of ownership structure and corporate performance for shipping firms. Their sample consisted of 107 internationally listed shipping firms and they examined their financial data and ownership concentration for the year 2009 by using GMM estimation. They measured corporate performance by using both ROA and ROE. Their variables consisted of ROA, ROE and percentage of the highest shareholder as dependent variables; leverage ratio, liquidity of the company, firms size, number of listed years, and number of years of operation of the firm as independent variables. According to the findings of this study, concentrated ownership is positively and strongly correlated with better firm performance, which is of particular significance for corporate governance and capital structure in the shipping industry. They also indicated that although differential corporate governance practices, they could not find any significant difference in ownership structure between Anglo-American and Euro-Asian stock exchanges for the shipping firms. One of other implication of this study is that size, liquidity and corporate performance are main determinants of concentrated ownership in shipping industry.

Koufopoulos et al. (2010) reviewed the literature on corporate governance and board practices such as organizational demography, organizational size,

ownership type, board size, CEO duality and CEO dependence/independence in Greek shipping firms. Their data were gathered from 27 ship management companies whose head office located in Greece. According to the findings of this study, Greek shipping companies that have a small board size ranging between five to seven board members that contribute to all stages of the strategic process from analysis to formulation and finally implementation, demonstrate a balanced board leadership structure and approximately half of the firms were seen to have the same person as CEO and board chairman, and also boards are mainly affected by the CEO. Additionally, they asserted that in some cases, board decisions could be enhanced by executive directors thanks to their knowledge on daily operations. One of their findings indicates that firms with CEOs acting as Chairman and with a lower proportion of external directors are more likely to experience failures. A great majority of the firms analyzed, CEO and chairman of the board is the same person, and thus board leadership was not found as independent. Finally, they indicated that shipping firms are characterized by an emergent strategy-development process, which is more fluid and fragmented, leading to the conclusion that there is less chance for non-executive directors to intervene or to submit their opinion.

Syriopoulos and Tsatsaronis (2011) investigated of the impact of the key corporate governance mechanisms on the financial performance of shipping firms namely; the presence of managerial executives (CEOs) related to the founding family, the ownership concentration (shares held) by Board of Directors (BoD) members; and the participation of independent members in the BoD. Corporate sample of the study includes 11 Greek shipping firms, listed on NYSE and NASDAQ stock exchanges for the period 2004-2008 on the basis of annual observations. The econometric methodology is based on a cross-sectional ordinary Least Squares (OLS) method to test the validity of their hypothesis. According to the findings of this study, a founding family CEO can have a positive impact on shipping firm financial performance, and can potentially be an efficient mechanism of corporate governance and contribute to an improved financial performance. Additionally, shared held by BoD can also have a positive effect on the firm's financial performance. On the other side, the impact of independent BoD members was found as contradictory. However, they suggested with the previous studies'

contributions that for a firm operating in a highly competitive industry, fewer outside BoD members might be convenient, as the firm is already “monitored” by a competitive product market that in turn, can have positive financial performance implications.

Lambertides and Louca (2008) examined the relation between ownership structure and operating performance for European maritime firms for the period of 2002-2004. Their dataset consisted of 266 firm-year observations for maritime firms listed on major European Stock Exchanges, and these firms were obtained from Datastream database using subsector code 2773. Their findings suggest that firms with more foreign shareholders and greater participation in the firms’ shares from investment companies have higher operating performance. Additionally, they found positive relation between operating performance and portfolio held shares for code law maritime firms but not for common law maritime firms or portfolio held shares.

1.2.2. Studies on Aviation Sector

Capobianco and Fernandes (2004) analyzed capital structures of the firms operating in civil aviation industries. They have considered 170 observations of 53 listed firms from 32 countries for the period of 1993-1997. According to the findings of this study, Shareholder capital in benchmark companies represented at least 40% of the total capital, and also a significant percentage of the firms tended to change their financial structure with the goal of lowering their leverage ratio and raising return over the years.

Tan et al. (2002) examined the determinants of global airlines’ accounting policy choices. The data source of this study is obtained from 80 airlines annual’s financial reports around the world for the 1997/1998 fiscal financial year. According to their findings, larger airlines tend to take unrealized foreign-exchange differences directly to equity and tend to disclose frequent-flyer accounting policy, while airlines with lower leverage tend to disclose frequent-flyer accounting.

Lu et al. (2012) investigated the relationship between operating performance corporate governance in 30 airline companies operating in the US by applying Two-stage data envelopment analysis. The results of truncated regression on board size,

and percentage of outstanding shares owned by executive officers all show significant, positive relations to performance. CEO duality presents significant negative relations with performance meaning that airlines can modify corporate governance to strengthen their efficiency and competitiveness.

Backx et al. (2002) examined the influence of an airline's ownership structure on multiple dimensions of its performance. Their sample consisted of 50 international airlines representing every continent for the period of 1993-1997 by using panel data analysis. According the findings of this study, public sector airlines under-perform relative private sector airlines. Furthermore, airlines with mixed ownership tend to perform better than public sector airlines, but worse than private sector carriers.

Fernandes and Capobianco (2001) analyzed financial strategies of civil aviation companies. Their sample consisted of 94 observations for 35 airlines operating in the world market for the period 1993-1996 by using data envelopment analysis. Financial leverage was treated as an input and net margin, total assets turnover, return on equity, operating margin, net assets turnover and return on net assets were treated as outputs. According to the findings, there is an optimum bracket for financial leverage. Shareholders' capital represents from 77 to 40% of total capital.

Gritta (1979) reviewed the effect of financial leverage on 5 major airlines' past financial patterns by using break-even analysis for the period 1960-1977. The results of financing were found to have had a significant impact on earnings per share levels and their variability for the carriers analyzed. It is suggested that the real lesson of the past is that marginally profitable carriers should not use long-term debt financing to maintain market positions, as the impact on earnings variability is too severe.

Pires and Fernandes (2012) examined the capital structure of 42 airlines from 25 countries in relation to the unexpected September 11 attacks in 2001 in the United States and their profitability in the following year by applying Malmquist index to indicate the airlines' capital structure changes from 2001 to 2002. As this attack can be considered as systematic risk, many companies increased the portion of equity in their total capital and thus decreased their financial risk. According to the findings,

airline capital structure decisions and profitability dynamics were much affected by the unexpected event of 2001 and they also asserted that airlines, which moved more intensively to reduce their indebtedness showed improved profitability, given their size, fleet and intangible assets. Of the airlines analyzed 64% improved their profitability, whereas 53% of the airlines that did not improve the ratio of equity to third-party financing had poorer performance. Most airlines increased in size as net revenue etc., relatively decreased their fixed assets as aircrafts, and increased their intangible assets.

Guzhva and Pagiavlas (2003) examined the 14 US Airlines' performances focusing on the capital structure for the periods of 1977-1978 and 1983-1984. They used four methods as market values, replacement costs, flow-of funds data, and book values of firms' debt and equity to analyze corporate capital structures. They found that most airlines do not follow lowering liabilities during lean times and increasing them during economic upturns as the traditional finance management practice. Only one airline demonstrates finance management of this type, with positive effects on its financial performance. Additionally, levels of current liabilities are properly adjusted for movements of interest rates among all airlines. They also found that return on assets has a negative effect on current liabilities for other airlines.

Considering the literature indicated above, mainly maritime and civil aviation companies in transportation industry have been covered. From the financial management perspective, it is seen that capital structure decisions and the effects of corporate governance practices on firm performance are the main topics in the literature.

To sum up the studies above; according to Drobetz et al. (2013) and Arvanitis et al. (2012), tangibility is significantly and positively affects leverage, whereas there is a significant negative relationship between profitability and leverage. Additionally, Drobetz et al. (2013) found that asset risk and operating leverage negatively affect the leverage. On the other side, Arvanitis et al. (2013) found that while size negatively affect leverage, non-debt tax shield occurred from accumulated depreciation expenses positively affect the leverage.

From the perspective of corporate governance practices; founding family CEO has significant positive effect on firms' performance according to Randoy et al. (2003) and Syriopoulos and Tsatsaronis (2011).

Insider ownership, in other words the shares of the board members, has been found positively related with the performance of the firm by Andreou et al. (2014), Lu et al. (2012) and Syriopoulos and Tsatsaronis (2011). However, Randoy et al. (2003) could not find any significant relationship between insider ownership and firm performance.

CEO duality is the variable that reveals contradicting results in the studies. Syriopoulos and Tsatsaronis (2012) and Lu et al. (2012) investigated CEO duality/separation and found that the choice of same person to serve as CEO and chairman generates negative impact on the financial performance of shipping and civil aviation firms supporting the agency theory. However, Andreou et al. (2014) found that, CEO Duality positively affects the firm performance suggesting that when CEO and chairman of the board is the same person, it increases the firm performance for the maritime sector. This result can be explained in terms of the OECD implication as corporate governance practices can differentiate country by country, even firm by firm according to the nature of the business, environment, culture, policies and other variables that directly or indirectly influence the firm.

Board independence is the other variable, which has contradicting results in the studies. According to Randoy et al. (2003), board independence positively related with firm performance, while Syriopoulos and Tsatsaronis (2011) found negative relationship.

According to Lu et al. (2012) and Andreou et al. (2014) there is a positive relationship between board size and performance as it may prevent over-investments and higher valuations, however as indicated by Koufopoulos et al. (2010) and Andreou et al. (2014) smaller boards enhance the value in Greek shipping.

Finally, Lambertides and Louca (2008) found positive relationship between firm performance and foreign shareholders and institutional ownership suggesting that the higher foreign members and institutional ownership existence lead to the higher firm performance for the maritime companies.

CHAPTER TWO

CAPITAL STRUCTURE

In most years there is a gap between the funds the firms need and the cash they generate internally as the firms need to invest to maximize their profits and shareholder value, and maintain its current business activities. Firms sell either new equity or borrow to make up this gap. This situation reveals two basic financing issues to be solved that proportion of profit rate should be retained at the firm rather than paid out to the shareholders as dividends, and that proportion of deficit should be financed by borrowing rather than by issuing of equity. These questions make the capital structure an important issue as a whole. If the firm has an ineffective capital structure, the cost of capital increases, and then lowers the NPV (Net Present Value) of the investment projects, which are unacceptable, and funding of the regular business activities will also be costly (Gitman and Zutter, 2012: 523).

A firm may use both equity and debt for its financing needs. While debt, is an external source that is provided from the outside of the firm, equity is provided not only internally as retained earnings, provisions, but also externally by using capital increase, issuing common stock, getting new partners, and issuing participation dividend certificate in terms of the capital structure of the firm (Akgüç, 2010: 481).

There are many reasons that capital structures vary across the sectors, and additionally among firms within a given sectors. Many attempts have been conducted to explain the factors of these differences, and as a result many theories have been developed (Brigham and Ehrhardt, 2010: 609).

Financial directors of the firms seek answers of following questions regarding capital structure (Biermann, 2003: 1);

1. How is the overall cost of capital of the firm changed by decisions affecting the capital structure?
2. How much debt should a firm have and how will the firm's value be affected as debt is added?
3. What is the firm's cost of capital?
4. What is the relevance of the cost of capital to investment decisions?

The first two questions are related with the types of securities sold to the investors to shrink the financial deficit of the firm. On the other hand, last two questions affect the decisions on the investment projects.

There are no definite answers to those questions although many theories have been developed for last 60 years to clarify them (Di Guilmi, 2008: 1). Both academics and practitioners have focused on the issue of how cost of capital is affected by capital structure for many years. Implementing the appropriate capital structure enables the firm's survival and wealth, the micro issue of capital budgeting, and additionally integration the financing sources and project returns into a one way project method and alternative financing choice are the main concerns of practitioners. On the other side, academics challenge explaining investment behavior and policy implications (Swanson et al., 2003: 14).

The first theoretical study of capital structure was examined by Modigliani and Miller (1958). They determined that the selection of debt/equity financing mix of a firm, which is called capital structure, does not affect its firm value under certain assumptions. Their analysis and assumptions are the foundation for almost all subsequent studies of debt/equity models and hypotheses while some supporting and some opposing each other.

In this chapter, to highlight the importance of capital structure, cost of capital has been examined in the first place as capital structure decisions are explicitly affect cost of capital or vice versa. Subsequently the nature of capital structure will be examined and leading capital structure theories, which were implemented upon the assumptions of Modigliani and Miller (1958) will also be covered.

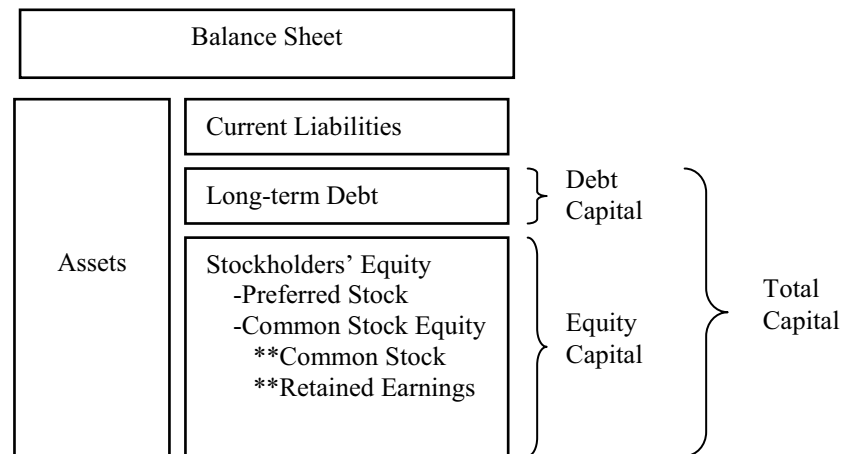
2.1. CAPITAL STRUCTURE DECISIONS AND COST OF CAPITAL

The aim of the firm is to maximize shareholder wealth by maximizing the current market value (Gitman and Zutter, 2012: 20). In view of researchers and practitioners, capital structure decision is one of the main factors of financial decision making, because it has a strict relationship with other financial decision variables, and determination of the firm value. The capital structure decision determines the balance of debt and equity in the firm, and the more a firm maximizes

the market value by adjusting the debt-equity ratio, the higher it maximize the wealth of the shareholders.

The sources of the capital consist of the items on the right hand side of the firm's balance sheet, but the current liabilities. The basic breakdown of the total capital whose components are debt and equity can be illustrated by using following simplified balance sheet as follows:

Figure 5: Total Capital Breakdown on Simple Balance Sheet



Source: Gitman and Zutter, 2012: 523

The differences between debt and equity are determined comparatively on the table below

Table 5: Debt Vs. Equity

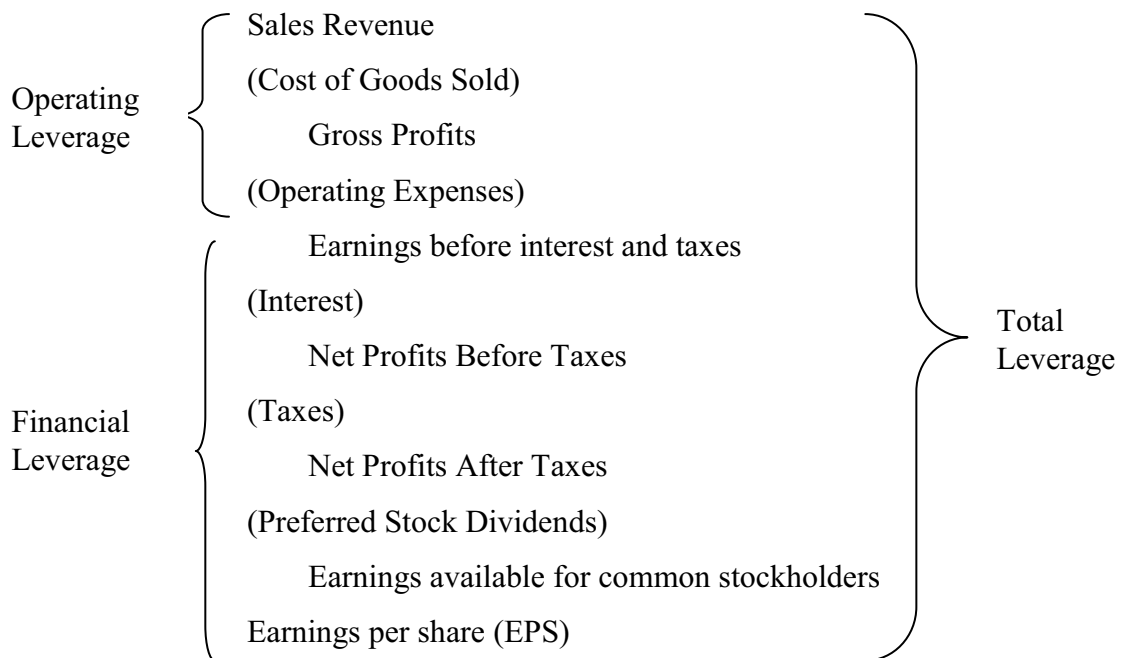
Debt	Equity
Capital Repayable	Capital not repayable unless liquidated
Interest compulsory	Dividends not compulsory
Interest tax deductible	Dividends not tax deductible
Increases financial risk	No increase in financial risk
Increases profitability of financial distress	No increase profitability of financial distress
Possible option value to shareholders	No option value
Restrictive covenants	No restrictive covenants
No control dilution, until terms of restrictive covenant broken	New issue may lead to control dilution
Cheaper issuing costs	Higher issuing costs
Often easier to issue to financial institutions	More complex rights issues, or new issue
Less future financing flexibility	Greater future financing flexibility

Earnings per share and return on equity higher, but higher risk	Earnings per share and return on equity lower, but lower risk
Possible adverse effect on supplier credit rating	No adverse effect on supplier credit rating
Possible conventional constraints such as book asset cover, income cover, etc.	No corresponding constraints

Source: Vernimmen et al., 2009: 481

Leverage alludes to the impacts that fixed costs, which do not rise and fall with the level of firm's sales, have on the returns that shareholders earn. Types of leverages are highlighted on general income statement format as below

Figure 6: Types of Leverage



Source: Gitman and Zutter, 2012: 508

Equity is more risky than debt, so the investors who have rational risk-averse behavior will expect a higher rate of return on equity. Therefore, use of low-cost debt can also be referred as a definition of leverage. The volatility of cash flow surplus for shareholders is increased by the increasing total borrowing, and as a result it adds financial risk to business risk.

As interest is tax deductible, after-tax cash flows by borrowing can be increased that enables the firm to use of low-cost debt, but if the investment does not

generate expected positive cash flow, the firm has a risk not to pay necessary interest and principal. Shareholders may encounter a financial distress, and then considerable transaction costs and delays may occur. Therefore, there is a trade-off between the tax shield of borrowing and financial distress or bankruptcy costs.

2.1.1. Definition and Importance of Cost of Capital for Capital Structure Decisions

Equipment and offices, or patents and trademarks are required by the firms to carry out new businesses. Thus, capital has to be raised to pay the price of these assets. Whether the capital is either gathered internally or externally by the firm, these assets have to generate sufficient cash flows to cover the cost of these claims (Porraz, 2011 : 1).

In financial economics, the cost of capital is perhaps the most fundamental and widely used concept. Directors of the firms and regulators are frequently make estimates on Weighted Average Cost of Capital (WACC) and the Marginal Tax Rate for investment decisions, rate regulation, restructuring activities, and bankruptcy valuation (Rao and Stevens, 2007 : 1).

Cost of capital can also be defined from three different perspectives. On the left-hand side, consisting of the assets, of the firm's balance sheet; it is the rate, which should be used to discount to a present value the future, expected cash flows. On the liability side, it is the cost to the firm of borrowing and retaining capital from lenders who carefully analyze and compare all return-generating opportunities in a competitive environment. On the equity side, it is the return that investors expect from an investment project in a firm's debt or equity. Since free cash flow is the available cash to the investors (debt, equity and hybrid securities), cost of capital must involve the required return for each investor (Pratt and Grabowski, 2008: 4).

As a result, the cost of capital is associated to the risk of the investment project. The riskier the investment, the higher the return anticipated by the investor (Porraz, 2011: 1).

There are four reasons that make the cost of capital important for the firms which are as following (Sayılğan, 2008: 257);

1. As capital is one of the main inputs used in the production process, the firms must lower their costs including cost of capital for the investment projects or business activities to maximize their profits in the competitive environment.
2. Cost of capital is considered for evaluation and valuation of investment projects. Discount rate used in the investment projects is the cost of capital used for its financing. The minimum rate of return that equalizes the NPV of cash inflows to be generated and outflows to be paid should be higher than the cost of capital used for this project.
3. Cost of capital is also used for the firm's value. The firm value is obtained by discounting the free cash flow to the firm at the weighted average cost of capital.
4. While determination of the optimal capital structure of the firm, the cost of capital at the lowest rate is considered.

This rate provides the investment chance that is significant or not, and represents the cost of internal and external sources used in the financing of investment projects (Akgüç, 2010: 439).

The cost of capital is the factor determines the economic growth as it expands or shrinks the pool of investors and volume of the projects. On the other hand, this affects some other points. For instance, investors would not save if the cost of capital is too low, and should the cost of capital is too high, the stock prices may decrease, and so does the number of investment projects. Cost of capital also delivers the information on competitiveness or capital structure that is dispatched and absorbed within financial markets to establish market-clearing prices (Porraz, 2011: 9).

Cost of capital also equals to the discount rate at which expected future total returns are reduced to present value. This rate reflects both time value of money and risk. The total of the discounted present values of each future period's incremental cash flow equals the present value of the investment. The terms "cost of capital", "discount rate", and "required rate of return" are frequently used interchangeably (Pratt, 2002:7).

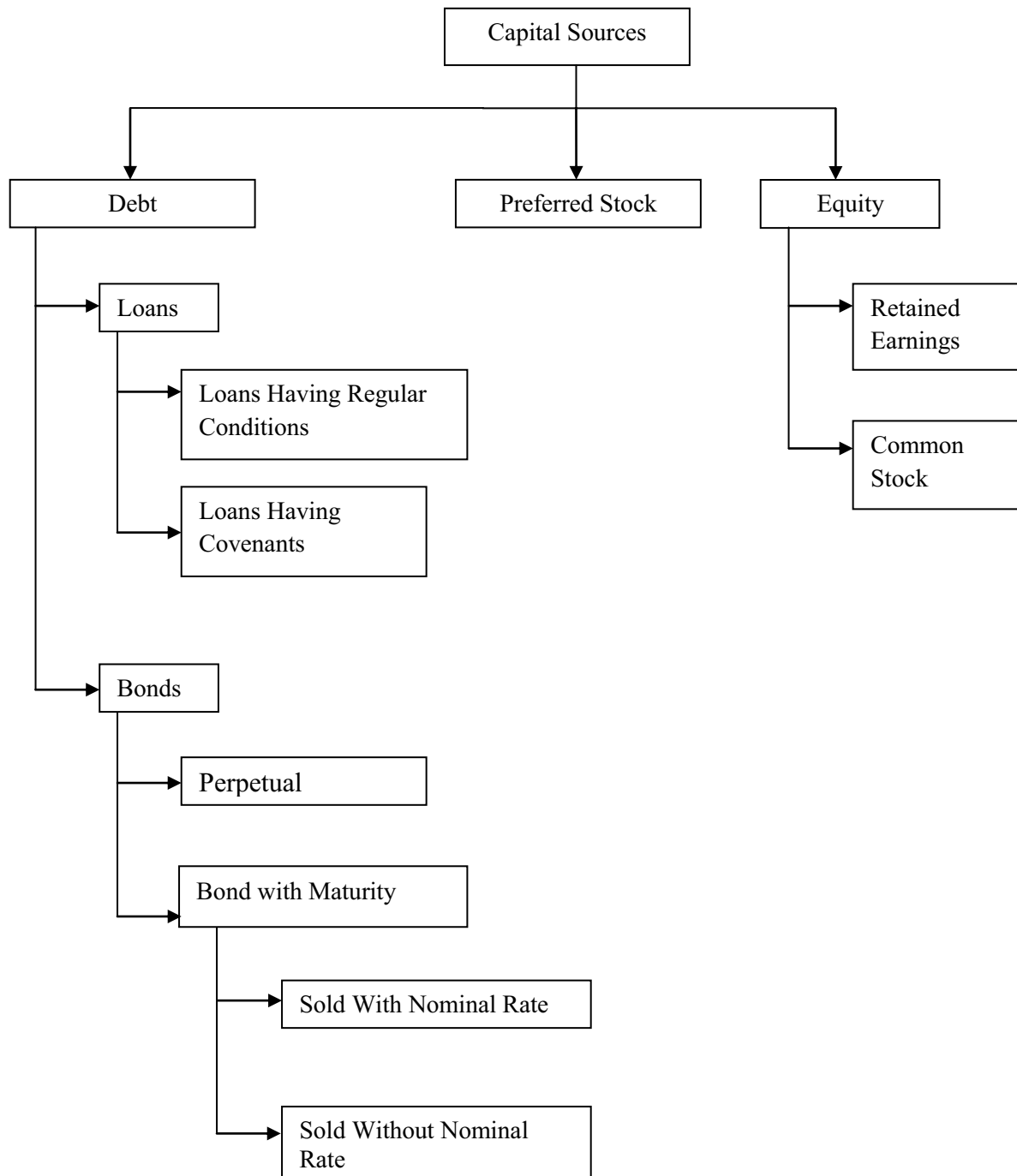
2.1.2. Calculation of Cost of Capital

There are several approaches on calculating cost of capital that is one of the problematic and important issues of financial management. According to the traditional approach, cost of equity is higher than cost of debt as shareholders expect higher profits compared with interest rates due to the cost of opportunity, and tax shields of debt interest rates. Hence, a firm can lower its cost of capital by using debt to the certain point (optimal capital structure); however, as debt makes the capital structure risky, shareholders begin to expect higher returns due to the increasing risk, and lenders will restructure the contract having covenants (Varan, 2013: 455).

The cost of capital arises from the expected rate of return on some basic price, which is measured as the market value of an asset instead of its book value. For instance, the net income indicated in the bond quotations is based on the closing market price of a bond, instead of its face value so does the implied cost of equity for a firm's stock (Pratt, 2002:6). Furthermore, while assessing the investment projects, the new or marginal rate of capital used must be considered, as existing rates of borrowing called historical rate will not probably be the same as the cost of capital. Hence, cost of capital is related with the expectations of lenders. Because each asset in global markets is priced by the market in terms of the conditions of the global or national economy, performance of the firm(s) concerned etc. Under these circumstances, expectations of the lenders vary and determine cost of capital in the first place.

Capital sources having long-term maturity for a firm are categorized as following:

Figure 7: Capital Sources



Source: Göker, 1996: 196 – 240

2.1.2.1. Cost of Debt

Debt consists of bank loans and bonds for the capital increase, and utilization rates vary firm to firm depends on their financial policies. The cost of debt is derived by the investor's expectation that they lend to the firm and cost of debt securities can be calculated in the scope of tax-deductibility as below (Keown et al., 2002: 383).

$$NP_d = \left[\sum_{t=1}^n \frac{I_t}{[1 + k_d(1 - T_c)]^t} \right] + \frac{M}{[1 + k_d(1 - T_c)]^t}$$

NP_d = Net proceeds per bond or loan

I_t = Interest paid in period t

k_d = Cost of debt capital

T_c = Corporate tax rate

M = Maturity value of the debt

As it is seen above, NP_d represents the net income excluding floatation costs, which consist of brokerage commissions, legal and issuing fees, taxes, promotion and distribution fees etc. should the firm issues bonds. This situation enables the cost of debt capital increase to the firm, compared with the investor's expected rate of return. If the firm uses bank loan, only brokerage costs occur as floatation costs.

2.1.2.2. Cost of Preferred Stock

Preferred stock is an instrument of ownership in a firm. In comparison with common stock, it gives higher claim to the shareholders on the assets and earnings. The shares of preferred stock usually don't have a right for voting, and also shareholders have priority on dividends to be paid out. The specifications of the conditions and such details are determined on the master agreement and general assembly decision of the firm.

It is the hybrid financial instrument as the structure of the preferred stock is similar both debt due to fixed dividends and higher claim on the assets and earnings if the firm goes into liquidation, and equity as the shareholder is not paid unless the firm make profit, and shareholder cannot take legal action because of that condition.

The reasons of using preferred stock to raise capital can be explained as below (Bierman, 2003: 143);

1. Debt is sufficient being a tax shield due to the past losses and expectation of the future losses, that's why it is not expected for the issuer to pay income taxes. In other words, debt does not offer tax advantages anymore.
2. Preferred stock is generally issued when the investors want a priority
3. Common stock price of the firm gets lower as its debt exceeds the capacity, and it needs additional capital.
4. To eliminate the dividend on common stock without harming investors, the firm offers an exchange of common stock into preferred stock.

Should the preferred stock is perpetual, has no maturity, and dividends are constant; the cost of preferred stock is determined as following (Brigham and Ehrhardt, 2010: 343);

$$k_{ps} = \frac{D}{P_{ps}(1 - F)}$$

k_{ps} = Cost of preferred stock

D = Annual dividend

P_{ps} = Preferred stock price

F = Floatation cost as a percentage of proceeds

Likewise the calculation of debt, floatation costs are considered whilst issuing preferred stocks.

2.1.2.3. Cost of Common Equity

Cost of equity estimation is more difficult than loans and preferred stocks as determination of dividends paid out to the shareholders not only depend on the global economic factors, but also business activities of the firm concerned.

Cost of equity is the minimum rate of return on the investment projects funded with the equity not to change the market value of the firm (Akgüç, 2010: 450). Cost of equity illustrates the compensation that the market demands in exchange for owning the asset and bearing the risk of ownership.

Common equity sources can be divided into two groups as holding the firm's earnings, and sale of new shares. Should the earnings of the firm is used for the financing, any floatation cost incurs but does when the sale of new shares (Keown et al., 2002: 386). If the firm uses equity instead of other financing sources, the expected rate of return of the investors that is called cost of equity differs among four perspectives such as;

1. Uncertainty on dividends because of the volatility in the firm's earnings year by year: In this case, calculation of the cost of equity can be presented as below (Akgüç, 2010: 452);

$$P_0 = \frac{D_1}{(1 + k_e)^1} + \frac{D_2}{(1 + k_e)^2} + \dots + \frac{D^\infty}{(1 + k_e)^\infty}$$

$$P_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1 + k_e)^t}$$

P_0 : Generated cash flows by the firm in t_0

k_e : Cost of common stocks

D : Dividend to be paid annually

2. Increase of dividends paid out in accelerating or falling rate at certain intervals.

If so, cost of equity can be calculated as below;

$$P_0 = \sum_{t=1}^N \frac{D_0(1 + g_s)^t}{(1 + k_e)^t} + \sum_{t=N+1}^n \frac{D_N(1 + g_n)^t}{(1 + k_e)^t}$$

g_s = Extraordinary growth rate

g_n = Ordinary growth rate

N = Period of the extraordinary growth rate

n = Period of the ordinary growth rate

3. Dividends paid out may have fixed rate. If so, the cost of equity is calculated as below;

$$k_e = \frac{D}{P_0}$$

4. Dividends may increase at a constant rate each year. If so, the calculations is as below;

$$k_e = \frac{D}{P_0} + g$$

Under some conditions, the firms may issue new shares to raise capital that reveals floatation costs as same as bond and preferred stock. This makes the cost of capital increase and net proceeds obtained by the firm decrease.

To formulize the cost of the new issue to the firm is calculated as below (Akgüç, 2010: 460);

$$k_e = \frac{D}{P_0(1 - b)} + g$$

b : The ratio of floatation cost to the amount of new shares

$P_0(1-b)$: Net proceedings from new issue

As it is seen from different perspectives above, cost of equity capital is calculated to find the discount rate that equals the expected dividends to be paid, to the stock market value of the firm concerned. This rate is not observable for the firms

and investors, but it needs to be estimated somehow. (Akgüç, 2010: 456);

Firms can retain earnings instead of paying them out as dividends to the shareholders for the investment projects. Although this type of financing may seem costless; if the earnings are retained at the firm, the shareholders incur the opportunity cost. Thus, the firm should earn from the investment projects funded with the retained earnings at least as much as its stockholders themselves could earn on alternative investment of equivalent risk (Brigham and Ehrhardt, 2010: 345). This rate of return of the investment conducted by the firm is the cost of equity used internal source as retained earnings (Akgüç, 2010: 467-468).

2.1.2.4. Weighted Average Cost of Capital

Firms employ capital for their investments projects from not only a unique source, but also a combination of sources due to the risk differences. Each source has a different required rate of return, so real cost of capital, which is called “Weighted Average Cost of Capital (WACC)”, is the cost of the combination of the sources used, and calculated as below,

$$\text{WACC} = \begin{matrix} \% \text{ of} \\ \text{debt} \end{matrix} \times \begin{matrix} \text{After-} \\ \text{tax cost} \\ \text{of debt} \end{matrix} + \begin{matrix} \% \text{ of} \\ \text{preferred} \\ \text{stock} \end{matrix} \times \begin{matrix} \text{Cost of} \\ \text{preferred} \\ \text{stock} \end{matrix} + \begin{matrix} \% \text{ of} \\ \text{Common} \\ \text{equity} \end{matrix} \times \begin{matrix} \text{Cost of} \\ \text{common} \\ \text{equity} \end{matrix}$$

To clarify the equation;

$r_d(1-T)$; is after-tax component cost of debt, where “T” is the marginal tax rate of the firm. It is the debt cost whilst calculating WACC, and lower than before-tax cost as it is tax-deductable. r_{ps} ; is the cost of preferred stock, and r_s is the cost of common equity that the rates of return stockholders and shareholders expect (Brigham and Ehrhardt, 2010: 339).

2.2. CAPITAL STRUCTURE THEORIES

Prior to 1958, academics and practitioners declared concluding that there was an optimum capital structure, but in 1958 they were shocked by the Modigliani and Miller (1958) theory that should two firms are in the same risk level and in a perfect capital market having no transaction costs, taxes, or no bankruptcy costs, then their equivalent market values are independent of their capital structures.

This model cannot be implemented to the real world, however it presents the main theoretical framework that identifies the firm's behaviors relative to the economic performances, and although many empirical analysis have been conducted for many decades on the basis of M&M model, there is still not worldwide accepted capital structure choice, it still remains a puzzle (Gitman and Zutter, 2012: 526).

2.2.1. Modigliani and Miller (M&M) Theory

Modern business finance was restructured by the capital structure irrelevance proposition of Modigliani and Miller (1958) that provided a new approach on optimal capital structure and dividend policy, and that is accepted as a spectacular idea by which the financial community and related parties fully affected (Harris and Raviv, 1991: 297).

This theory does not give an exact answer of how the firms finance their business activities or investments; it encourages the related parties why financing matter (Frank and Goyal, 2009:5). Although their assumptions are unrealistic to be applied to the real world, the model also reveals the requirements and conditions that make capital structure relevant and effects on firm value (Rajan and Zingales, 1995: 1451). Thus, researchers have focused on the M&M assumptions to develop applicable theories on capital structure.

M&M determined that neither capital structure nor dividend decisions matter under very restrictive assumptions. Thus, market value of a firm should not be affected by such decisions. As financing, capital structure, and dividend decisions do not increase shareholder value, they are considered to be irrelevant.

The assumptions mentioned are as following (Baker and Martin, 2011:17);

- There is a freely accessible information in the market for the investors and managers
- Securities are eternally divisible.
- There is no transaction costs such as floatation costs, brokerage cost etc.
- All investors are rational that they are trying to maximize their earnings or minimize their losses.
- Expectations of all investors about the future earnings are the same.
- All firms are classified into same risk level
- All cash flows are permanence
- Individuals can borrow and lend at the same rate as companies

Under these assumptions MM asserts that the firms at the same risk level and net operating incomes have same firm value as well. Therefore, value of the firm cannot be changed by altering capital structure (Akgüç, 2010: 499).

This theory provides a framework for practitioners and researchers to consider the determinants of the capital structure. For many decades, many researchers have examined each of these assumptions, and it is realized that certain conditions that the value of a firm is relevant to its capital structure in terms of these assumptions. Researchers mainly focus on tax implications, effects of asymmetric information and agency problem implications of this proposition (Muzaffer, 2006: 8). The classic arbitrage-based irrelevance propositions provide settings in which arbitrage by investors keeps the value of the firm independent of its leverage (Frank and Goyal, 2009: 5).

Two hypothetical financing proportions have been handled by M&M. The first is the all equity portfolio of a firm. According to M&M, cash flow equals to Earnings Before Interest and Tax (EBIT). Because the firm does not pay taxes, and there is no need to make any investment as the firm has no growth, and the EBIT is paid out as dividends. The second portfolio consists of partially debt compared with the unlevered firm, and the other conditions are same. If the interest rate is r_d , and total debt used is D , this levered firm pays the interest in the amount of $r_d D$, and dividends is paid out in the amount $EBIT - r_d D$ due to the no growth, and no taxes. As

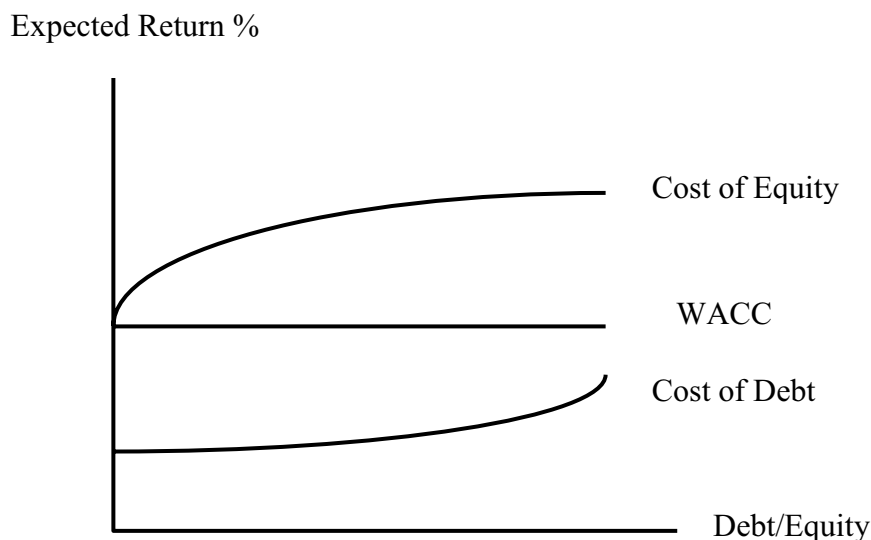
a result, the cash flow equals to;

$$rdD + (EBIT - rdD) = EBIT.$$

Thus, the cash flow of this portfolio is equal to EBIT as well. Under both circumstances the cash flow equals to EBIT. Therefore, as the cash flows generated are identical, value of both portfolios must be same, and as a result the capital structure has no effect on firm value (Brigham and Ehrhardt, 2010: 610-611).

M&M divided the debt-related costs as visible and invisible costs. While the interest paid on debt is visible, higher returns expectation of the shareholders from the investments relative to the increase in the debt ratio can be considered as an invisible cost. Thus, invisible cost enables the WACC constant, and this relation can be graphically seen as below:

Figure 8: Expected Return Vs. Cost of Capital



Source: Brealey et al., 1995: 401

M&M expanded their model in 1963 by considering the effect of corporate tax on capital structure. Should the firm use debt, tax regulations allow the firm to deduct interest payments as an expense; hence these payments reduce the taxes paid by the firm. According to their revised model the value of a levered firm equals the sum of the value of identical unlevered firm and PV of tax shield. As a result, the value of firm increases on the proportion of the tax rate, and WACC decreases (Modigliani & Miller, 1963: 433-443).

Firms generally have stockholders with tax rates ranging from zero (foundations, Universities, and retirees) to the maximum of the governmental mandatory taxes. Should the personal taxes is considered just like firm taxes, tax advantages occur as a tax deferral and capital gains that may outweigh the advantages to the firm of the tax deductibility of interest (Bierman, 2003: 61-64). Therefore, the effects of personal taxes were examined by Miller (1977).

The income from bonds is generally interest taxed as personal income, whereas income from stocks is generally obtained from both dividends and capital gains. Long-term capital gains are taxed less than interest tax, and are deferred until the stock is sold and the gain realized. Additionally, tax of capital gains does not need to be paid, if stock is held until the owner dies. Therefore, returns on stocks are taxed at lower effective rates than returns on debt. Thus, Miller emphasized that the deductibility of interest privileges the use of debt, but the more favorable tax treatment of income from stock lowers the required rate of return on stock and thus the use of equity gains priority. The effect of corporate tax and personal tax can be formulized as below (Brigham and Ehrhardt, 2010: 612);

$$V_L = V_U + \left[1 - \frac{(1 - T_c)(1 - T_s)}{(1 - T_d)} \right] D$$

V_L = Value of levered firm

T_s = Personal tax rate

V_U = Value of unlevered firm

T_d = tax rate on income from debt

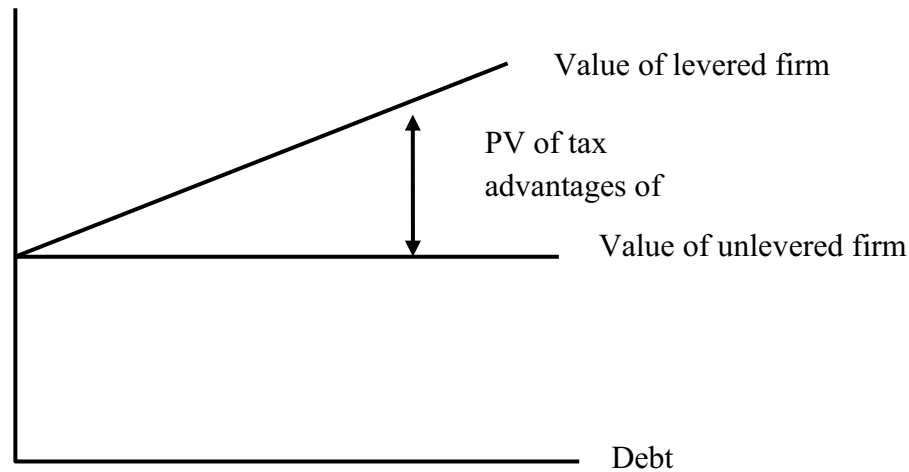
T_c = Firm tax rate

D = Debt

Furthermore, This relation can be graphically seen as below:

Figure 9: The effect of corporate tax and personal tax

Market Value of the Firm



Source: Brealey et al., 1995: 402

The curve demonstrates how the tax advantage affects the value of the firm. As the interest is tax-deductible the cash flow of lenders and shareholders increases so does the market value of the firm.

Many studies have been conducted based on Miller (1977) paper. De angelo and Masulis (1980) expanded Miller's differential tax model to include and generally unnoticed but major feature of the US Tax Code. The existence of firm tax shield substitutes for debt such as accounting depreciations deductions and investment tax credits. According to them, these firm tax code features in reality leads to a market equilibrium in which each firm has a unique interior optimum leverage decision due only to the interaction of personal and firm tax treatment of debt and equity. Their model also allows for positive default costs. Miller (1977) model cannot be applied to their model as the net firm-marginal personal tax saving is endogenously determined to be of the same order of magnitude as expected marginal default costs. Their model yields a number of testable hypotheses regarding both the cross-sectional and time-series properties of firms' leverage decisions as well as the marginal personal tax rates implicit in relative market prices.

Barnea et al. (1981) generalized the analysis of bond market equilibrium by indicating a significant cost function for tax avoidance and a significant agency cost function for firm debt financing. If such costs increase, the formulized interest rates

rise; higher agency costs cause the supply curve of funds available and the interest rate on corporate debt to decrease.

Scholes and Wolfson (1992) asserted the model of direct and indirect taxes into the theoretical framework. According to their paper, interest payments have an obvious impact on firm value. Because the direct tax applied once the interest is received. Hence, interest rate influences the relative advantage of debt over equity. Additionally, it is pointed out that, investors also encounter indirect taxes on public bond interest that are not taxed directly. Thus, the yield earned from this kind of bonds is lower compared with the yield of the firm bond interest, and the lower rate on public bonds reflects an indirect tax and impacts the Miller (1977) equilibrium.

According to the Miller (1977), the conditions based on a general equilibrium for debt that individuals and firms have joint access to the debt market, but not on an equal basis. Shelton (1981) concluded that the firms have a price advantage over debt offered by individuals. A solution was introduced on the issue of unequal access to the debt market between individuals and firms in this paper by developing a general equilibrium on both personal and firm debt.

Jaffe (1985) examined the effect of inflation on both interest rates and equity returns when the Miller (1977) equilibrium condition is employed and effects of interest rate redistribution were derived. According to Jaffe (1985), the interest rate effect pushes the reactivity of the interest rate to the inflation rate to be below. On the other hand, the redistribution effect may vary this reactivity in either way.

Haugen and Senbet (1986) modified the Miller (1977) equilibrium to account for redundant tax shelters and internal progressive tax rates that makes significant changes in the form of the equilibrium. Optimal internal leverage ratios and indirect tax rates in firm debt returns that are below the firm tax rate constitute these changes.

2.2.2. Trade-off Theory

The original form of the trade-off theory revealed from the dispute on the Modigliani and Miller (1958) theory. The first theoretical research on this issue conducted by Kraus and Litzenberger (1973) providing a model that optimal leverage represents a trade-off between the tax benefits of debt and the deadweight costs of

bankruptcy. Trade-off theory has been used in different researches to state related theories. In all of these theories, a financial director of the firm (or the owner of the small enterprises) assesses the various costs and benefits of alternative leverage plans. In general, it is presumed that an interior solution is acquired so that marginal costs and marginal benefits are balanced. When a firm's income tax was added to the original irrelevance proposition, this created a yield from the nature of tax deductibility of debt interest payments. As the firm's objective function is linear, and there is no offsetting cost of debt, this implied 100% debt for financing the operational activities and investments. To avoid this huge prediction, an offsetting cost of debt is required which is then revealed as bankruptcy. (Frank and Goyal, 2007: 141).

The trade-off theory of capital structure substantially includes legal and contracting issues in two broadways. First, a firm's institutional environment could affect its optimal capital structure. Second, the environment could influence the speed with which a firm converges to its target (Oztek and Flannery, 2012: 88).

In Modigliani and Miller (1958), one of the assumptions was that the bankruptcy cost does not exist, but in real world, this cost can be costly. Should the firms face bankruptcy, they have very high expenses on legal and accounting issues, and they also have trouble retaining customers, suppliers, and employees, and credibility may fall as the lenders begin to demand higher interest rates and apply restrictions. Additionally, firms may liquidate or sell the asset they own for a rock bottom price to proceed the business activities. Bankruptcy-related issues often occur when a firm raises the proportion of its debt liabilities in its capital structure. Thus, firms limit their debt ratios not to face bankruptcy costs. Firms whose profits are volatile may use less debt relative to the stable firms as the probability of going bankruptcy increases so does the cost. Therefore, the firms with high operating leverage, and therefore business risk, must restrict the use of financial leverage. The benefits of using debt against higher interest rates and bankruptcy cost are evaluated by trade-off theory. According to this theory, the value of the levered firm equals to the shield and the expected costs caused by the financial distress (Brigham and Ehrhardt, 2010: 613).

Schneller (1980) analyzed the effect of taxation on the optimal capital structure of a firm when all investors have the same tax level. In this paper, it was shown that for the dividend paying firm, in the presence of the inequality between the capital gains and dividend income tax rates and the possibility of illiquidity, interior solutions for the capital structure decision is possible. The solution to the capital structure problem matches up with that of Miller (1977), when the dividend-paying firm is always liquid. On the other side, for the earning-retaining firm without bankruptcy, the optimal capital structure is always a promising solution. An interior solution is possible, when bond default is allowed. In this study, it was also shown that differential rates are inconsistent with the value maximization rule, and recent attempts to explain the fact that firms do not resume promising solution by means of differential rates of taxation.

Baron (1975) examined the bankruptcy cost issue placing a series of bounds on the value of debt within a partial equilibrium frame, starting from a risk-free condition. It is assumed that, subject to the increase on the level of debt, the nominal interest rate increases, and this situation makes the bankruptcy costs exceed the tax advantage of debt financing, and thus interior optimum capital structure point reveals.

Scott (1976) presented a multi period model of debt, equity, and firm valuation. Under the assumption that the market for real assets was imperfect, the model stated that the value of the stable firm was a function not only of expected earnings in the future, but of the liquidating value of its assets.

During the 1970s, estimating firm asset liquidating value could be reasonable considering most firm assets were tangible. But, over the years, the form of firm assets had become increasingly intangible, and statistically approximately half of firm asset value came from intangible assets. But, during a financial crisis, the intangible assets associated with firm dignity may be weakened as faced in the 2002 Enron case, where financial asset value was partly measured by the firm's reputation. When Enron fall from grace, the financial asset values were collapsed as well (Swanson et al., 2003: 70).

Turnbull (1979) examined the variables of capital structure deriving closed-form solutions for firm debt and equity apart from the capital asset pricing model,

given that the tax shelter produced by the tax deductibility of interest payments is risky and if bankruptcy reveals so does the costs. It has been shown that as the promised face value of debt is increased; the market value of debt reaches a maximum, which is less than the market value of the firm, and then falls. The maximum value of debt is identified as the firm's debt capacity, which is the maximum amount of credit, which lenders will extend to the firm. It is shown that for a firm maximizing market value, the optimal capital structure always occurs before the firm's debt capacity.

Nakamura and Nakamura (1982) implemented a formula for the long-term debt ratio of a firm. In this paper for both US and Japanese firms that the long-term debt ratio depends positively on the cost of equity and negatively on the cost of debt, capital productivity and retained earnings. In particular, capital productivity, which was not included as an explanatory variable in earlier studies, and the cost of capital were found to be important determinants of the firm's capital structure.

Bradley et al. (1984) introduced a model that associates the modern balancing theory of optimal capital structure, and that involves positive personal taxes on equity and on bond income, expected costs of financial distress (bankruptcy costs and agency costs), and positive non-debt tax shields. A simulation analysis presented that leverage ratios should be inversely related to firm earnings volatility.

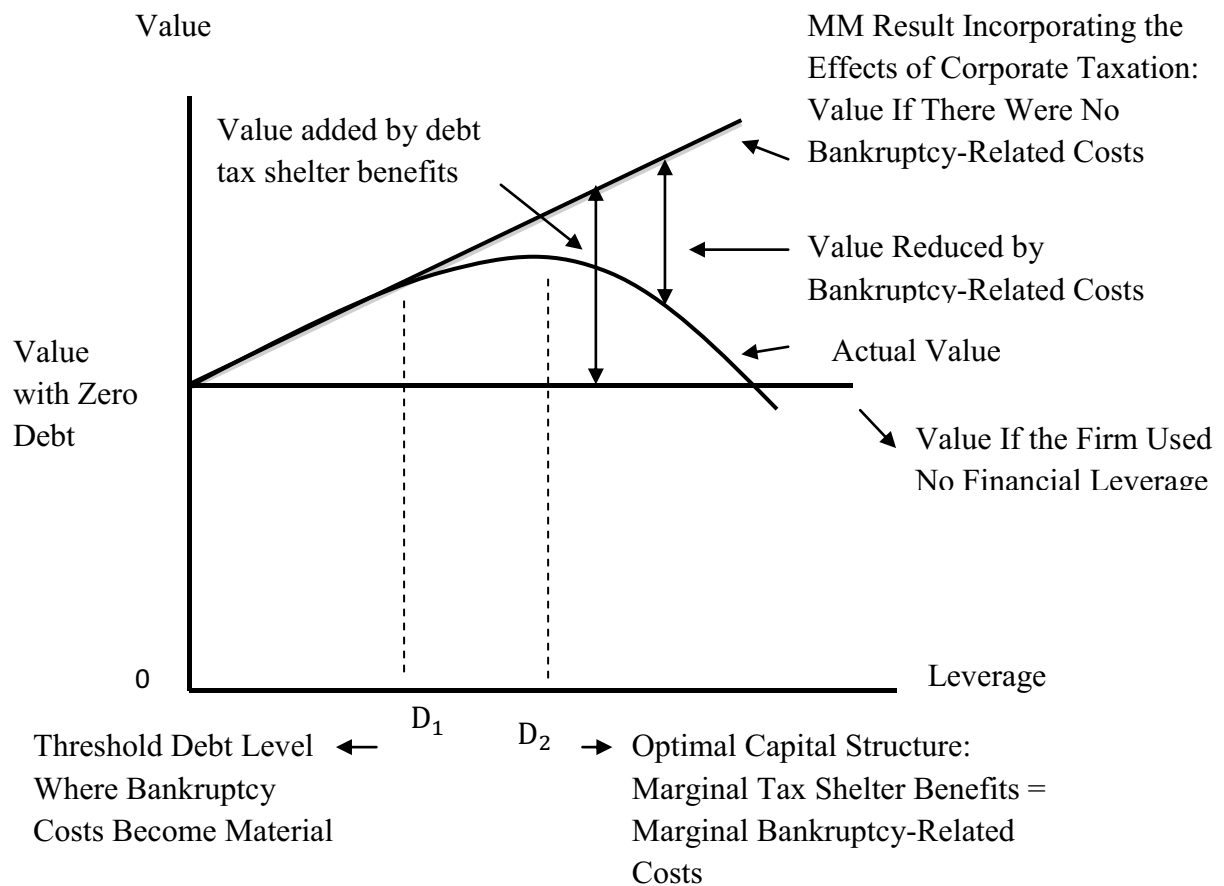
Stulz and Johnson (1985) analyzed the pricing of two types of secured debt and showed that the value of debt is higher when a new project is partly financed with secured debt. Especially, according to the authors, some profitable projects will not be conducted by a firm which can use only equity or unsecured debt for financing, but will be conducted should secured debt is used for financing. Secured debt is priced for a firm with two assets and some unsecured debt outstanding. The pricing results are used to illustrate the benefits of the security provision of secured debt.

In addition to Stulz and Johnson (1985) study on secured debt, Morellec (2001) also examined the secured debt on capital structure. It is shown that asset liquidity increases debt capacity only when bond covenants restrict the disposition of assets. On the other hand, with unsecured debt, greater liquidity increases credit spreads on firm debt and reduces optimal leverage. Furthermore, it is determined that

security provisions and asset liquidity may help in practice to highlight leverage ratios and credit spreads.

Skarabot (2001) aimed to provide the reasons of securitization of the assets, that firms own. A valuation models for the multi-asset firm, the single-asset firm and the securitization method were developed. To obtain the analytic clarity of the valuation model, some simplifying assumptions on the assets, the form of the firms, and the securities issued. According to this study, since the valuation expression for each of the model is procured, the optimal asset structure that maximizes the overall firm value. Trade off theory can be graphically summarized that can be seen below:

Figure 10: Trade-off Theory Demonstration



Source: Brigham and Ehrhardt, 2010: 614

According to Myers (1984), a firm that follows the trade-off theory has an aim debt-to-value ratio and then progressively moves towards the aim. The aim is set

balancing tax shields by using debt financing against costs of bankruptcy. Myers' definition may be evaluated as below; (Frank and Goyal, 2007: 141-142).

1. The target is not explicitly observable. It may be imputed from evidence, but that depends on adding a structure. Different studies add that structure in different ways.
2. Different conclusions on the target can be reached depending on which characteristics of the tax code are included, as the tax code is much more complicated than assumed by the theory. Useful literature review on tax effects were provided by Graham (2003).
3. Bankruptcy costs must be deadweight costs instead of transfers from one claimant to another. There are some discussions on the features on these costs whether they are fixed costs, or increase with the size of bankruptcy, and whether they applied once like lawyer's fees or permanently such as the cost of a damaged reputation.
4. Transaction costs must take a particular form for the analysis. For the adjustment to be gradual rather than abrupt, the marginal cost of adjusting must increase when the adjustment is larger. Implications on assumptions of alternative adjustment costs discussed by Leary and Roberts (2005).

Under these circumstances, Myers's definition can be divided into two parts. The first is the static trade-off theory. The second is dynamic trade off theory.

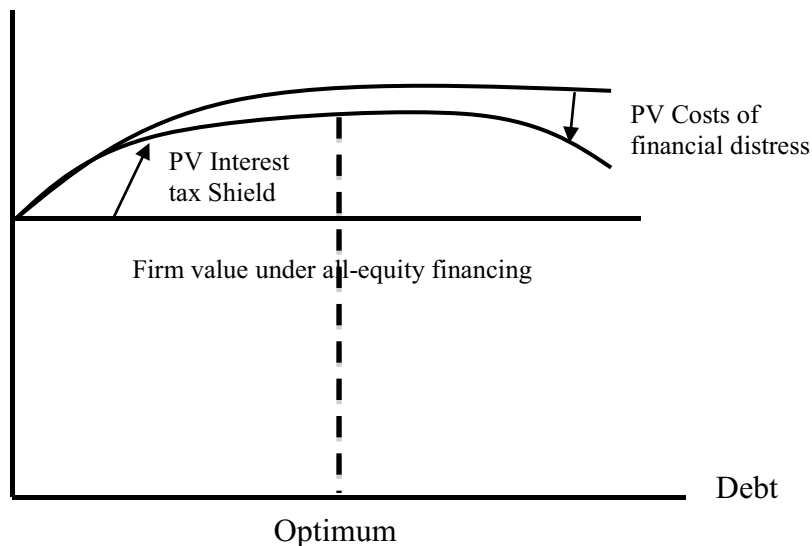
2.2.2.1. Static trade off theory

The static trade-off theory assumes instantaneous readjustment to target debt ratio, which implies either zero transaction costs or managers' indifference to transaction costs (McMillan and Camara: 2012: 280).

Optimal debt ratio of the firm is generally viewed as determined by a tradeoff of the costs and benefits of debt, keeping the asset of the firm and investment plans constant. The firm is supposed to substitute debt for equity, or equity for debt, until the value of the firm is maximized. Thus the debt-equity tradeoff is as illustrated below:

Figure 11: Benefits and Costs of Debt Financing

Market value
of the firm



Source: Myers, 1984: 577

It reflects how present value of interest tax shields and the cost of financial distress are considered by firms while determining the target leverage ratios. The straight line demonstrates the value of all equity-financed firm. This firm may increase its value replacing equity with debt, and subsequently tax-deductible interest payments will occur. But, the more debt usage increases, the more probability of presence of financial distress cost which is the major cost of debt financing reveals. Additionally, should the firm keeps using debt, the advantage of using tax shield is no longer available, and as a result the firm will go bankrupt. In theory, when the tax advantage of debt financing and cost of financial distress is balanced, the optimum capital structure can be mentioned at that point where the value of the firm is maximized (Demir, 2012: 8-9).

2.2.2.2. Dynamic trade-off theory

As the static trade off theory does not give an accurate response in the continuously changing environments, and also it disregards the transaction costs, Fischer et al. (1989) expanded the static capital structure theory by developing a model of dynamic optimal capital structure choice in the presence of recapitalization costs and showed that there is not an optimal outcome, but a range of solutions to optimize the capital structure, and financial directors or owners of the small enterprises must conduct the capital structure by gradually trading off the costs and the benefits of debt usage.

The dynamic trade-off model refers maintaining an optimal capital structure that balances the costs and benefits using debt, and has an implicit positive effect on expected return on investment. This view assumes that firms rebalance their capital structure to reach their optimal leverage ratio. But, this kind of rebalancing is done gradually because of the existence of market imperfections, such as transaction costs. Additionally, where there are varying costs and benefits of both debt financing and adjustment to target, then firms will have varying debt levels and varying speeds of adjustment to target. The costs of misleading from target is weighed against the cost of moving towards the target, as well as factors that affect external financing costs and thus either speed up or slow down the adjustment process back to target (McMillan and Camara, 2012: 281).

Leland (1994) examined firm debt values and capital structure in a unified analytical framework. Closed-form results for the value of long-term risky debt and yield spreads, and for optimal capital structure, when firm asset value follows a diffusion process with constant volatility were derived in this study. According to Leland (1994), debt values and optimal leverage are explicitly linked to firm risk, taxes, bankruptcy costs, risk-free interest rates, payout rates, and bond covenants. The results of the study explain different behavior of junk bonds against investment-grade bonds, and aspects of asset substitution, debt repurchase, and debt renegotiation.

Leland (1998) examined the joint determination of capital structure and investment risk. According to this study, optimal capital structure indicates both the

tax advantages of debt less default costs, and the agency costs resulting from asset substitution. Agency costs restrict leverage and debt maturity and increase yield spreads, but their importance is small for the range of environments considered. Additionally, risk management was also examined by Leland (1998) indicating that hedging allows greater leverage.

Leary and Roberts (2005) empirically investigated whether firms attend a dynamic rebalancing of their capital structures while allowing for costly adjustment. It was illustrated in this study that the presence of adjustment costs has remarkable implications for financial policy of the firm. Additionally, they found that firms actively rebalance their leverage to keep optimal range, and then it was shown that firms tend to make capital structure adjustments relatively infrequently (in general once a year) but in clusters.

Hovakimian et al. (2001) examined the heterogeneity across the firms, faster adjustment for over-levered firms and those firms that use debt reduction as preferred rebalancing option was introduced. According to their study, when firms either raise or retire significant amounts of new capital, their choices move them toward the target capital structures suggested by the static tradeoff models, often more than offsetting the effects of accumulated profits and losses. This qualitative pattern persists regardless of the maturity or the convertibility of the debt being issued.

Flannery and Rangan (2006) examined nonfinancial firms on their target capital ratios during the period of 1966-2001. The evidence is equally strong across size classes and time periods, and indicates that a partial adjustment model with firm fixed effects fits the data. Additionally, they presented that firms that are under- or overleveraged soon adjust their debt ratios to offset the gap observed.

Kayhan and Titman (2007) examined how debt ratios were affected by cash flows, investment expenditures, and stock price histories. They found that these variables have a considerable effect on changes in capital structure especially stock price changes and financial deficit can be considered as the major ones. It was also indicated that despite the firms' histories strongly affect their capital structures, over time their capital structures tend to move towards target debt ratios that are consistent with the tradeoff theories of capital structure.

2.2.3. Signaling Theory

One of the assumptions of M&M was that investors have the same information on the firm's prospects as its managers. But, in reality, managers have better information than investors on the condition of the firm, which has excellent or poor prospects in the future. This is called asymmetric information whose effect on capital structure is remarkable. Under these circumstances, investors make their decisions based on the expectations of returns and opportunities in terms of the managers' updates on the capital structures of the firms to be invested. Thus, managers adjust their observable actions considering the results of the investors' reactions (Swanson et al., 2003: 112).

Akerlof (1970) who used the concept of car warranties as a feature to signal quality firstly focused on asymmetric information that occurs when the seller knows more on a product than the buyer.

If the firm finds a good opportunity, the capital needs to be raised for investment by using either selling stocks or using debt. If the firm sells its stocks, the current and the new stockholders earn much more profits due to the new investment, but as the current stockholders would not want to share the pie with the new ones, the firm uses debt instead of equity. On the other hand, if the firm, under financial depression or having poor future prospects, sells its stocks to obtain capital to keep its business activities, new stockholders will have to share the losses with the current ones. To sum up, the announcement of a stock offering is generally taken as a signal that the firm's prospects as seen by its own management are not good; conversely, a debt offering is taken as a positive signal. As issuing stock creates a negative signal and tends to fall the stock price even if the firm's true prospects are clear, a firm should maintain a reserve borrowing capacity so that debt can be used if an investment opportunity occurs. As a result, in normal times, firms should use more equity and less debt than is suggested by the tax benefit–bankruptcy cost trade-off model (Brigham and Ehrhardt, 2010: 615-616).

The signaling literature is quite diverse; but two key assumptions can be considered in this literature. The first one is whether the signal results in a separating equilibrium. The second one is whether the signal is costly or not. There are diverse

signaling models that make different assumptions on the underlying structure in the application of signaling literature to capital structure decisions (Riley, 2001: 432-478).

For instance, in Ross (1977) model managers know the exact information on the distribution of the returns, whereas investors do not. If managers have such information, however, then the choice of a financial structure and of managerial incentive schedule conveys a signal to the market, and as a result the implications come up from the signals will be validated in competitive equilibrium. As the bankruptcy is very costly to managers, they can convey a high quality signal by high debt that indicates positive information. On the other side, high-quality firms can imitate their situation on any debt level, whereas low-quality firms cannot.

Myers and Majluf (1984) suggested that if equity is issued, it signals weakness to the market and the share prices of the firm concerned will decline sharply. Thus, in this study, an equilibrium model of the issue-invest decision was introduced. According to the model, firms may reject to issue stock, and as a result may omit valuable investment projects, as the market under-values equity under information asymmetry. If the undervaluation is remarkable, stock issue might cause the new stockholders getting more than NPV of the new investment, leaving the current stockholders at a loss.

Heinkel (1982) considers a model indicating that "higher" quality firms have higher overall value but lower quality bonds, hence higher equity value, and as a result debt acts as a costless signal that achieves separating equilibrium.

Miller and Rock (1985) extended the standard finance model of the firm's dividend/investment/financing decisions by allowing the firm's managers to know more than outside investors on the firm's current income. They showed that an informationally consistent signaling equilibrium exists under asymmetric information and the trading of shares that restores the time consistency of investment policy, but leads in general to lower levels of investment than the optimum achievable under full information and/or no trading.

Harris and Raviv (1991) also introduced that debts produce information that can be acquired by lenders to assess leading operating decisions including liquidation. Because the proposition that debts serve as a disciplining method as

lenders are allowed to liquidate the firm if the firm goes bankrupt.

Leland and Pyle (1977) developed a model of capital structure and financial equilibrium in which entrepreneurs seek financing of projects whose true qualities are known only to them. They showed that signal of project quality can be observed from the entrepreneur's willingness to invest in his own project. Share of the firm held by entrepreneur make increase the value of the firm. They also suggested that financial intermediation, which is difficult to explain in traditional models of financial equilibrium, can be viewed as a natural response to asymmetric information.

Blazenko (1987) suggested that, preferences of managers dominate firms' financing decisions as firm performance affects managers' wealth or reputation. According to this study, the managers of firms with high (low) value have a lower (higher) risk position and will issue debt (equity).

All of these arguments on asymmetric information and as a result unexpected costs lead to the firm to raise capital according to the pecking order theory.

2.2.4. Pecking Order Theory

According to Myers' (1984) and Myers and Majluf's (1984), pecking order theory has been derived from the asymmetric information issue. This theory means a hierarchy of financing that begins with retained earnings, followed by debt, and new stock issues as a last resort. If the firm obtains valuable investment opportunities, it will be financed using retained earnings in the first place. But, if the cash internally generated is not sufficient for funding, then external financing via debt markets will be used. Issuing new equity is considered as a last resort (Gitman and Zutter, 2012: 534).

This theory suggests that managers of the firms have information on the operations, and future prospects that is not known by investors or other parties. Thus, they cannot value current assets and newly issued securities correctly. Therefore, this theory is based on asymmetric information between managers and outsiders. Managers may take advantage of the information they have by issuing debt instead of equity, as equity issue is perceived as a bad news by the market that make the cost of

equity issue higher. Additionally, when a company announces an increased regular dividend, stock price typically rises, because investors interpret the increase as a sign of management's confidence in future earnings. In other words, the dividend increase conveys information from managers to investors (Brealey et al., 2011: 460).

To sum up, the financing pecking order is as following (Myers, 1984: 581);

1. Firms prefer internal finance

2. They adapt their target dividend payout ratios to their investment opportunities, while trying to avoid sudden changes in dividends.

3. Sticky dividend policies, plus unpredictable fluctuations in profitability and investment opportunities, mean that internally generated cash flow is sometimes more than capital expenditures and other times less. If it is more, the firm pays off debt or invests in marketable securities. If it is less, the firm first draws down its cash balance or sells its marketable securities.

4. If external finance is required, firms issue the safest security first. That is, they start with debt, then possibly hybrid securities such as convertible bonds, then perhaps equity as a last resort.

The pecking order behavior becomes the rational response not only to tax and transaction costs, but also as a signaling equilibrium with increased understanding of the consequences of asymmetric information (Baskin, 1989: 26).

Large firms with tangible assets encounter less costs of financial distress and may borrow more according to tradeoff approach, and also the market-to book ratio as a measure of growth opportunities is considered and growth firms could face high costs of financial distress and may borrow less. On the other side, according to the pecking order approach defends the importance of profitability, arguing that profitable firms use less debt as they are financed internally. Also, the market-to-book ratio is considered as just another measure of profitability (Brealey et al., 2011: 462-463).

According to the tests conducted by Shyam-Sunder and Myers (1999), Fama and French (2002), and Lemmon and Zender (2010); the pecking order works properly for large firms that rarely issue equity, and that have access to public bond markets. They prefer internal financing until its limit. Smaller, younger, growth firms are more likely to rely on equity issues when external financing is required.

2.2.5. Market Timing Theory

The market timing theory shows that stock prices and interest rates are sometimes either too low or too high relative to their true fundamental values according to the managers. Managers try to time the market by issuing equity when they believe stock market prices are abnormally high and issuing debt when they believe interest rates are abnormally low as a result of difference of opinion with the market consensus (Brigham and Ehrhardt, 2010: 617).

Market timing is a behavioral corporate finance approach. Investors can be sometimes irrationally positive and sometimes irrationally negative. Managers can take advantage by issuing shares when the stock price is too high and switching to debt when the price is too low if the views are more stable than investors'. Thus lucky firms with a history of buoyant stock prices will issue less debt and more shares, ending up with low debt ratios. Unfortunate and unpopular companies will avoid share issues and end up with high debt ratios. Market timing could explain why companies tend to issue shares after run-ups in stock prices and also why aggregate stock issues are concentrated in bull markets and fall sharply in bear markets (Brealey et al., 2011: 463).

Baker and Wurgler (2002) firstly introduced this theory showing that firms try to minimize their cost of capital by issuing equity when their market values are high, compared with book and past market values, and by repurchasing equity when their market values are low. They asserted that current capital structure is strongly related to historical market values and capital structure is the cumulative outcome of past attempts to time the equity market.

Contrary to Baker and Wurgler (2002), Hovakimian (2006) found that there is negative relation between market-to-book ratio and leverage. It was asserted in this study that although equity transactions may be timed in terms of the market conditions, they do not have significant long-lasting effects on capital structure. It was also found that current financing and investment decisions are affected significantly by historical average market-to-book implying that it contains information about growth opportunities not obtained by current market-to-book. Many studies have been conducted on the relationship of market timing theory and

capital structure (Mahajan and Tartaroglu, 2008; Dong et al., 2012 etc.). Titman and Wessels (1988) presented a cross-sectional model to explain firms' capital structures and evaluated collateral value of assets, non-debt tax shields, growth, uniqueness, size, profitability, industry, and earnings volatility as explanatory variables. Their results show that uniqueness is related to capital structure, but they could not find the effects of non-debt tax shields, volatility, collateral value, or future growth on debt ratios. Chang et al. (2009) have extended the study of Titman and Wessels (1988) by applying multiple indicators and multiple causes model. They found that growth is the most important determinant of capital structure choice, followed in order by profitability, collateral value, volatility, non-debt tax shields, and uniqueness. Moreover, it was asserted in this study that long-term debt is the most important proxy of capital structure, followed by short-term debt, and then convertible debt.

2.3. DETERMINANTS OF THE CAPITAL STRUCTURE

After World War II, the economical conditions and policies of the countries evolved. Accordingly, firms conform to the new economical conditions and also begin to expand their business activities in the country they run and also worldwide as the economical borders between the countries have removed in reality due to the globalization. Keeping and expanding business activities to maintain or increase firm value require continual cash flow either by generating the capital from internal sources or obtaining from the external sources. This requirement leads us to the capital structure choice dilemma, which is a major concern in the modern finance environment.

As discussed previously, capital structure theory dates back to the Modigliani and Miller (1958) "capital structure irrelevance" proposition on the value of firms running in perfect markets. Subsequently, as emphasized by Psillaki and Daskalakis (2008), literature placed much emphasis on relaxing the assumptions made by M&M, in particular considering agency costs (Jensen and Meckling 1976, Myers 1977, Harris and Raviv 1991), signaling (Ross 1977), asymmetric information (Myers and Majluf, 1984, Myers 1984).

Capital structure of a firm can be both affected by several external and internal factors. On the external aspect, tax policy of the government of whom the firm must obey the rules and regulations, inflation, political conditions etc. are the macro variables that may implicitly or explicitly affect the capital structure. On the other side, the characteristics of a firm as an internal aspect can also influence the capital structure of the firm. In this chapter, how the individual characteristics of the firm influence its capital structure associated with the capital structure theories discussed in previous chapter.

According to the current literature, there is no theory explaining all-time-series and cross-sectional patterns of observed leverage ratios. Yet, observable firm-level factors comprising the variation in firm leverage has been identified by various studies. Observable leverage factors can be considered as proxy for the impacts acquired from the theories should be related with capital structure. However, the expected relationship of this status is not always clear, and thus the importance of sorting out of this signed and economically relevant factors on firm leverage show up (Drobetz et al., 2013:52).

The primary aim of the firm capital structure analysis is to examine the determinants and their effects on firms' financing decision. Thus, it is important to explain the most related determinants of leverage that would correctly reflect firms' past financing decisions (Köken, 2010: 57).

Several determinants have been examined on the effect to the capital structure of a firm by many empirical studies. Harris and Raviv (1991) suggested that leverage increases with fixed assets, non-debt tax shields, investment opportunities, and firm size and decreases with volatility, advertising expenditure, the probability of bankruptcy profitability and uniqueness of the product. Rajan and Zingales (1995) generalized these determinants affecting leverage as tangibility, market-to-book (growth), size and profitability.

2.3.1. Tangibility

Tangibility is the ratio of the book value of depreciated fixed assets to total assets (Bevan and Danbolt, 2000: 14). Access to tangible assets varies across the

firms running in different sectors. Some contains a greater rate of tangible assets such as manufacturing, and some is primarily composed of intangible assets such as computer services (Bhaired and Lucey, 2010: 362).

The type of the firm's asset structure affects capital structure decisions. Tangible assets can be considered as collateral, and thus the more the presence of large fraction of tangible assets; the more the firm can easily obtain capital from external sources at a lower interest rate relative to the other conditions. (Niu, 2008: 136). As indicated by Myers and Majluf (1984), as costs of issuing securities can be avoided by issuing secured debt, selling secured debt is more advantageous.

Firms with higher fixed-to-total asset ratio face lower cost of financial distress, because based on trade off perspective, tangible assets lose their value less should the firm goes bankruptcy. Furthermore, investors seeking a good investment opportunity, easily value the tangible assets compared with the intangibles such as goodwill from an acquisition, and thus, the conditions of lower information asymmetry, less pronounced agency costs of debt, and a higher debt capacity will occur. Therefore, according to the trade-off theory, there is a positive relationship between tangibility and leverage and the collateral value of assets can be a proxy for agency and financial distress costs. (Drobtz et al., 2013: 53; Frank and Goyal, 2009: 9).

Additionally, Long and Malitz (1985), Fama and French (2002), Drobtz and Fix (2003), Van Der Wijst & Thurik (1993); Chittenden et al. (1996); Jordan et al. (1998); Michaelas et al. (1999), have also indicated the existence the positive relationship between long-term debt and fixed assets.

Based on the pecking order theory, Harris and Raviv (1991) argue that equity issuance is less costly due to the tangibility-induced reduction in information asymmetry by implying lower leverage ratios for firms with more tangible assets. Relative to this approach, the positive relationship between tangibility and leverage has been proved in most empirical studies such as Chung (1993) Walsh and Ryan (1997), Drobtz et al. (2013).

2.3.2. Size

Although many empirical studies have been conducted, the results are ambiguous, and unfortunately, theories cannot provide an explanation on relation between leverage and size (Drobtz et al., 2013: 53). Should the trade off theory and Jensen's (1986) agency based approach is considered; there is a positive relationship between two variables. According to tradeoff theory, larger firms don't consider the direct bankruptcy costs as an active variable in deciding the level of leverage as these costs are fixed by constitution and constitute a smaller proportion of the total firm's value. Additionally, larger firms being more diversified have lesser chances of bankruptcy (Titman and Wessels, 1988: 5-6).

Additionally, as larger firms are more prone to control their managers' activities, they should have more debt based on Jensen (1986) agency based approach. Warner (1977), Ang et al. (1982), Marsh (1982), Rajan and Zingales (1995), Chittenden et al. (1996), Booth et al. (2001), Drobtz and Fix (2003), Hovakimian et al. (2004), Flannery and Rangan (2006) and Frank and Goyal (2009) found positive relationships in support of trade off and agency based theories.

In contrast to those studies, size can be regarded as a proxy between the insiders' of the firm and the capital markets for information asymmetry. As larger firms are more transparent compared with the smaller ones, and therefore they are able to issue equity in the first place that makes the adverse selection costs when issuing equity lower. Thus, it can be suggested that there is a negative relationship between size and leverage based on the pecking order theory of the capital structure as larger firms exhibit increasing preference for equity relative to debt which supports by the empirical studies of Kester (1986), Kim and Sorensen (1986), Titman and Wessels (1988), Heshmati (2001), Bevan and Danbolt (2004), and Khalid (2011).

2.3.3. Profitability

Since Modigliani and Miller (1958), several theoretical studies have been conducted, but unfortunately, there are still not consistent predictions on the

relationship between profitability and leverage (Huang and Song, 2006: 17). There are different evidences on this relationship based on different approaches.

Firms undertake lower costs of financial distress as long as they generate higher income (Drobetz et al., 2013: 53). Furthermore, as profitable firms are able to come through against unexpected economical recession, they can easily get funds from creditors (Arvanitis et al., 2012: 42). As asserted by Jensen and Meckling (1976), Myers (1977), and Harris and Raviv (1990), tax shield benefits of debt financing will encourage the more profitable firms to increase their debt proportion in their capital structure.

Agency models asserted by Jensen and Meckling (1976), Easterbrook (1984), and Jensen (1986) suggest that to reduce agency conflicts, more profitable firms adjust their capital structures by increasing higher leverage. Accordingly, as indicated in the several empirical studies such as Bowen et al. (1982), Dammon and Senbet (1988), Givoly et al. (1992), there is a positive relationship between profitability and leverage based on the tax based and agency conflict approaches. Long and Malitz (1985) found positive relationship between leverage and profitability, but it is not statistically significant.

In contrast, because internal funds such as retained earnings are preferred instead of external funds, the more profitable firms reduce the proportion of debt level of leverage based on the pecking order theory. Accordingly, there is a negative relationship between profitability and leverage according to this theory. Several studies such as Rajan and Zingales (1995), Frank and Goyal (2009), Kester (1986), Friend and Lang (1988), Baskin (1989), Wiwattanakantang (1999), Shyam-Sunder and Myers (1999), Booth et al. (2001) provided evidences on this relationship.

2.3.4. Liquidity

Liquidity ratios have mixed effects on the capital structure decision of the firms. On the one side, higher liquidity ratios make leverage ratio increase to cover the short term liabilities which are due. Accordingly, a positive relationship between leverage and liquidity is observed. In contrast, should the firms hold liquid assets, they may easily be used for funding of their investment and other capital needs.

Therefore, it can be suggested that there is a negative relationship between liquidity and leverage (Sibilkov, 2009: 1175-1177).

2.3.5. Growth Opportunities

Baskin (1989) suggested that firms with growing potential might face higher costs of financial distress as the more a firm is growing, the more the probability of bankruptcy increases, because growth opportunities may reveal moral hazard effect that encourages the firms to take additional risks. Thus, an inverse relationship occurs between growth and leverage based on the trade-off theory that also proved by several empirical studies such as Long and Malitz (1985) and Toy et al. (1974).

The pecking order theory implies higher leverage ratios for firms with high growth opportunities; when required funds for new investment related with the growing exceed internal funds such as retained earnings, debt is expected to increase. Michaelas et al. (1999) suggest that, the growing may cause depletion of the internal funding sources, and thus the lack of funding pushes the firms into finding external capital sources. Due to the probability of underinvestment issue, and as equity-based firms prefer to invest sub-optimally to expropriate wealth from the firm's bondholders, they are expected to face higher debt-related agency costs.

On the other hand, Myers (1977) asserted that agency problem could be ignored if the firm issues short-term rather than long-term debt, because short-term debt ratios might be positively related to growth rates if growing firms place short-term funding for long-term funding. In addition to Myers (1977); Jensen and Meckling (1976), Smith and Warner (1979) and Green (1984) argued the convertible debt issue that lower the agency costs, and asserted that convertible debt ratio is positively related with expected future growth (Titman and Wessels, 1988:4).

2.3.6. Non-Debt Tax Shield

High level of tax rates increases tax benefits of debt interest payments. Based on the trade off theory, firms will increase their debt level when tax rates are higher to obtain the advantage of higher interest tax shields (Frank and Goyal, 2009: 9).

Some investments may produce non-debt tax benefits, which are not related to how these investments are financed by the firms. These investments can be considered as substitutes for tax shields although they do not consist of any debt related costs (Ozkan, 2001: 181).

If the literature is explored, the results of empirical studies are controversial on the relationship of non-debt tax shield and leverage. On one hand, should the capacity of debt tax benefit is concerned, the inverse relation occurs as indicated by DeAngelo and Masulis (1980), Titman and Wessels (1988) and Ozkan (2001); on the other hand should the securability is concerned, the direct relation occurs as indicated by Bradley et al. (1984) and Wald (1999).

DeAngelo and Masulis (1980) suggested a optimal capital structure model comprising corporate taxes, personal taxes and non-debt related corporate tax shield such as depreciation expenses, depletion allowances, investment tax credits etc. which serve as a substitute for interest expenses that are deductible in calculation of the corporate tax and thus which lower firm's capacity of debt tax benefit. As a consequence, firms with high-level non-debt tax shields are expected to adjust their capital structures by reducing debt level. This means that an inverse relationship exists between non-debt tax shield and leverage.

According to the model of DeAngelo and Masulis (1980), the observed cross-industry differences in financial leverage is related with the different levels of non-debt tax shield found in different industries as also indicated by Bowen et al (1982) whose findings are consistent with this model. However, Boquist and Moore (1984) conducted similar test with Bowen et al. (1982) based on the hypothesis of DeAngelo and Masulis (1980), but the conclusion is opposite due to the differing methodologies.

Bradley et al. (1984) suggested a finding on the direct relation between firm leverage and the relative amount of non-debt tax shields, and they determined that this relation contradicts the theory that focuses on the substitutability between non-debt and debt tax shields. Bradley et al. (1984) explained the reasons that non-debt tax shields are an instrumental variable for the securability of the firm's assets, with more securable assets leading to higher leverage ratios.

2.3.7. Volatility (Business Risk)

Volatility or business risk is a proxy for the probability of financial distress (Huang and Song, 2006: 20), and the market determines the interest rates and debt amount to be provided to the firm in terms of the firm's earning volatility (Ferri and Jones, 1979: 633). Thus, it was indicated in several empirical studies such as Thies and Klock (1992), and Harris and Raviv (1991), Booth et al. (2001) that a firm's optimal debt level is inversely related to the volatility of earnings.

However, as indicated by Bradley et al. (1984), Titman and Wessels (1988) and other authors, there is an unconnected relationship between earnings variability and financial leverage (Chang et al., 2009: 204).

On the other side, Hsia (1981) showed that the systematic risk of equity decreases, because the variance of the value of the firm's asset increases. Therefore, the positive relationship between these two variables is expected.

2.3.8. Corporate Governance

2.3.8.1. The Emergence of Corporate Governance as a Discipline

After the financial crises in 1998 in Russia, Asia and Brazil, the lack of governance of corporations affected not only the whole economies of the countries concerned, but also global financial stability (Claessens and Yurtoglu, 2013: 2). In conjunction with governance issue, corporate governance is accepted as an essential subject worldwide, due to the several corporate crises that have happened in both countries that promote shareholder-value governance approaches (such as the United States or Great Britain) and countries that endeavor for stakeholder value governance approaches, such as Germany or Japan (Hilb, 2012: vii-viii). The ultimate goal of the corporate governance is to make sure that corporate works towards the interests of investors, thus to increase the economical efficiency, to inspire a confidence to the investors, and also to maintain the public wealth and interest (OECD, 2004). Thus, directors and managers should comprehend and apply to increase their performance in addition to their business policy and practice in modern business environment.

Corporate governance system is needed to moderate the agency problems in the capital markets (Andreou et al., 2014: 59), and thus it has emerged to solve the potential debates on interests of stakeholders and shareholders in the corporate structures of the firms (Gillan and Starks, 1998: 1). As discussed by Jensen and Meckling (1976), Jensen (1983), Grossman and Hart (1983), Shleifer and Vishny (1997) and Denis and McConnell (2003), these debates arise from two main agency problems that differential goals and choices of related parties, and that information asymmetry on knowledge, choices etc. between these parties. Thus, corporate governance has a vital role not let managers exploit the sources of the firms, whereas prioritize the firm performance and shareholder and stakeholders' interest.

Corporate governance mechanisms are thus used to reduce these kinds of debates as governance failures may explicitly or implicitly affect all parties with interests. Not to face this kind of problems, or to easily deal with the conflicts and debates, corporate governance turn into the main factor for the corporations. Board of directors, financing agreements, laws and regulations, labor contracts, the market for corporate control, competitive environment can be regarded as internal and external mechanisms of corporate governance (Gillan and Starks, 1998: 1).

The cases occurred last decades have demonstrated that even small governance problems may transform to the much larger if they are neglected. Given the financial scandals, the necessity of primitive form of corporate management structures was revealed. Thus, Cadbury report has taken attention and became into regulators' and practitioners' agenda. It is expected that should the corporate governance principles are used properly by the firms, this kind of scandals will not come up any longer (Taşkın et al., 2013:1). Accordingly, corporate governance principles are becoming increasingly remarkable, as directorial duties and responsibilities are called into question to obtain financial stability and economic performance (Clarke and Branson, 2012: 11).

Corporate financial scandals faced in last two decades have been exemplified in the table below:

Table 6: Corporate Financial Scandals

Company	Year	Country	Detail
Daewoo	1998	South Korea	Accounting fraud embezzlement by former CEO
Flowtex	1999	Germany	Insolvency after exaggerating sales figures
Enron	2001	USA	Bankruptcy of the seventh largest US company due to accounting fraud
Marconi	2001	UK	Bankruptcy due to overpriced acquisitions and to neglecting of controls
Swissair	2001	Switzerland	Insolvency due to wrong strategy, inefficiencies of the board
HIH	2001	Australia	Stock market manipulation
One Tel	2001	Australia	Overstretching of budget for overambitious acquisitions
Allied Irish Bank	2002	Ireland	Loss of \$961m in unauthorized trading
Worldcom	2002	USA	Company collapses with \$41bn debt due to fraudulent accounting
Tyco	2002	USA	Overstretching of budget for overambitious acquisitions leading to bankruptcy
Vivendi	2002	France	Overstretching of budget for overambitious acquisitions leading to losses of \$23.3bn
Royal Ahold	2003	Netherlands	\$500m accounting fraud
Parmalat	2003	Italy	Undisclosed debts of €14.3 bn
Volkswagen	2005	Germany	Abuse of corporate funds to provide inappropriate benefits

Source: Steger and Amann, 2008: 6

Over the last two decades, studies triggered by the seminal work of La Porta et al. (1997) and (1998) on economic effects of corporate governance have grown remarkably (Martynova and Renneboog, 2011: 1531). The first broad survey conducted by Shleifer and Vishny (1997), and subsequently Denis and McConnell (2003) etc. Researchers, practitioners and policymakers begin to consider the

potential macroeconomic, distributional and long-term consequences of weak corporate governance systems (Claessens and Yurtoglu, 2013: 2). A sequence of serious corporate failures in the United Kingdom (UK) led to the London Stock Exchange commissioning a report on *The Financial Aspects of Corporate Governance* (Cadbury, 1992). This report has been as a source of inspiration and played an important role in guiding many countries on transparency, integrity and accountability as spirit of corporate governance. As indicated by Aguilera and Cuervo-Cazurra (2004), most countries have developed their corporate governance codes, and the European Corporate Governance Institute Index of Codes (ECGI, 2011) lists over 200 codes across 85 countries. There were few releases on corporate governance in 1992, but by 2011 Google recorded 18.5 million hits on this issue (Clarke and Branson, 2012: 12).

Corporate governance standards have been implemented by leading international agencies such as The Group of Twenty Finance Ministers and Central Bank Governors (G20), The Organization for Economic Co-operation and Development (OECD), International Monetary Fund (IMF) and World Bank for both managing the risk of corporate failure, and improving economic performance, facilitating access to capital, decreasing market volatility, and enhancing the investment climate (OECD, 2004). Additionally, academic studies and policy implementations have emerged the corporate governance as a new legal discipline in the 1980s in the USA (ALI, 1995).

2.3.8.2. Definition of Corporate Governance

Corporate governance definition varies in terms of differential understandings and interpretations. Claessens and Yurtoglu (2013) divide the corporate governance definitions into two categories. The first is the set of performance, efficiency, growth, financial structure, treatment of shareholders and stakeholders that is called behavioral patterns, which considers how board of directors operates, what the role of executive compensation in determining firm performance is, what the function of multiple shareholders are, and how labor policies affect the firm performance in a single country. The second is the set of rules, judicial system, financial and labor

markets that is called normative framework, which can be used for the comparative studies considering how it affects the behavioral patterns of the firms and other related parties. From comparative and broad perspective, Gillan and Starks (1998) define corporate governance from a broad aspect as the system of laws, rules, and factors controlling operations of corporate. Blair (1995) also defined corporate governance as the set of legal, cultural and institutional arrangements that determine listed firms' lines of work, control mechanism and its applications, and also the risks and returns from their business activities they are dealing with. From more specific perspective, considering behavioral patterns, it needs to be focused on how outsiders protect themselves from the expropriation by the managers of the firm. Thus, minority right protections and creditors rights would be included. Shleifer and Vishny (1997) defined the corporate governance on this issue as the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment.

Corporate governance can be referred as the system by which firms are directed and controlled as asserted by Cadbury (1992). Zingales (1997) views governance systems in broad aspect as the complex set of constraints that determine shape the ex post bargaining over the quasi-rents (profits) produced by the firm enabling the maximum contribution to the whole stakeholders and as a consequence to the entire economy.

In 1992, The Committee on the Financial Aspects of Corporate Governance chaired by Adrian Cadbury have issued a report that is called "Cadbury Report" setting out recommendations on the adjusting of board of directors, and accounting systems to reduce the risks and failures of the corporate governance. The report defines the corporate governance as:

Corporate governance is the system by which companies are directed and controlled. Boards of directors are responsible for the governance of their companies. The shareholders' role in governance is to appoint the directors and the auditors and to satisfy themselves that an appropriate governance structure is in place. The responsibilities of the board include setting the company's strategic aims, providing the leadership to put them into effect, supervising the management of the business and reporting to shareholders on their stewardship. The board's actions are subject to laws, regulations and the shareholders in general meeting.

In 1999, OECD Ministers endorsed the OECD Principles of Corporate Governance, and since then these principles have become an international benchmark for all related parties such as policymakers, companies, investors, and other stakeholders providing specific guidance for legislative and regulatory principles for both OECD and non-OECD countries. The Financial Stability Forum accepted these principles as one of the 12 key standards for steady financial system. In 2004, the principles were reviewed considering new developments in OECD and non-OECD countries. OECD (2004) defines corporate governance as:

Corporate governance deals with the rights and responsibilities of a company's management, its board, shareholders and various stakeholders. How well companies are run affects market confidence as well as company performance. Good corporate governance is therefore essential for companies that want access to capital and for countries that want to stimulate private sector investment. If companies are well run, they will prosper. This in turn will enable them to attract investors whose support can help to finance faster growth. Poor corporate governance on the other hand weakens a company's potential and at worst can pave the way for financial difficulties and even fraud.

Solomon and Solomon (2004) conducted a survey among large institutional investors in the UK regarding the differential definitions of corporate governance and responses have been summarized and demonstrated as following:

Table 7: Corporate Governance Definitions

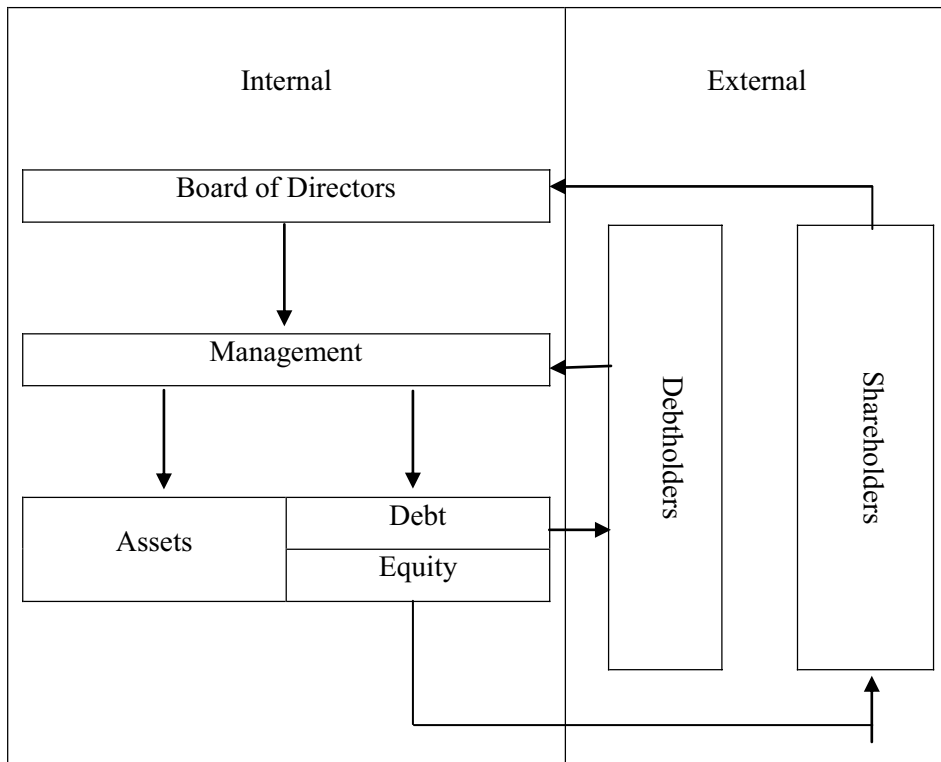
Rank	Corporate governance is...	Average Response
1	...the process of supervision and control intended to ensure that the company's management acts in accordance with the interests of shareholders.	Strongly Agree
2	...the governance role is not concerned with the running of the business of the company per se, but giving overall direction to the enterprise, with overseeing and controlling the executive actions of management and with satisfying legitimate expectations of accountability and regulation by interests beyond the corporate boundaries.	Agree
3	...the governance role is not concerned with the running of the business of the company per se, but giving overall direction to the enterprise, with overseeing and controlling the executive actions of management and with satisfying legitimate expectations of accountability and regulation by interests beyond the corporate boundaries.	Agree
4	...the relationship between shareholders and their companies and the way in which shareholders act to encourage best practice (e.g., by voting at AGMs and by regular meetings with companies senior management). Increasingly, this includes shareholder 'activism' which involves a campaign by a shareholder or a group of shareholders to achieve change in companies.	Some Agreement
5	...the structures, process, cultures and systems that engender the successful operation of the organization.	Some Agreement
6	...the system by which companies are directed and controlled.	Some Agreement

Source: Solomon and Solomon, 2004: 71

2.3.8.3. Corporate Governance Mechanisms

Researchers generally divide corporate governance mechanisms into two groups as internal and external to firms. This relationship is depicted below. Basics of internal governance are highlighted on the left hand side. Which assets to be invested and how they will be financed are decided by the management team who acts as the agents of the shareholders. Jensen (1983) asserted that the board of directors who play a role as a top point of internal control mechanism, monitor the activities of management and advise them if needed. Furthermore they have a right to hire, fire, and compensate the senior management team. Should a firm need to raise capital from external sources; the elements of external governance can be seen on the right hand side of the diagram. Additionally, a separation exists between capital providers and those who manage the capital. This separation makes the demand for corporate governance structures.

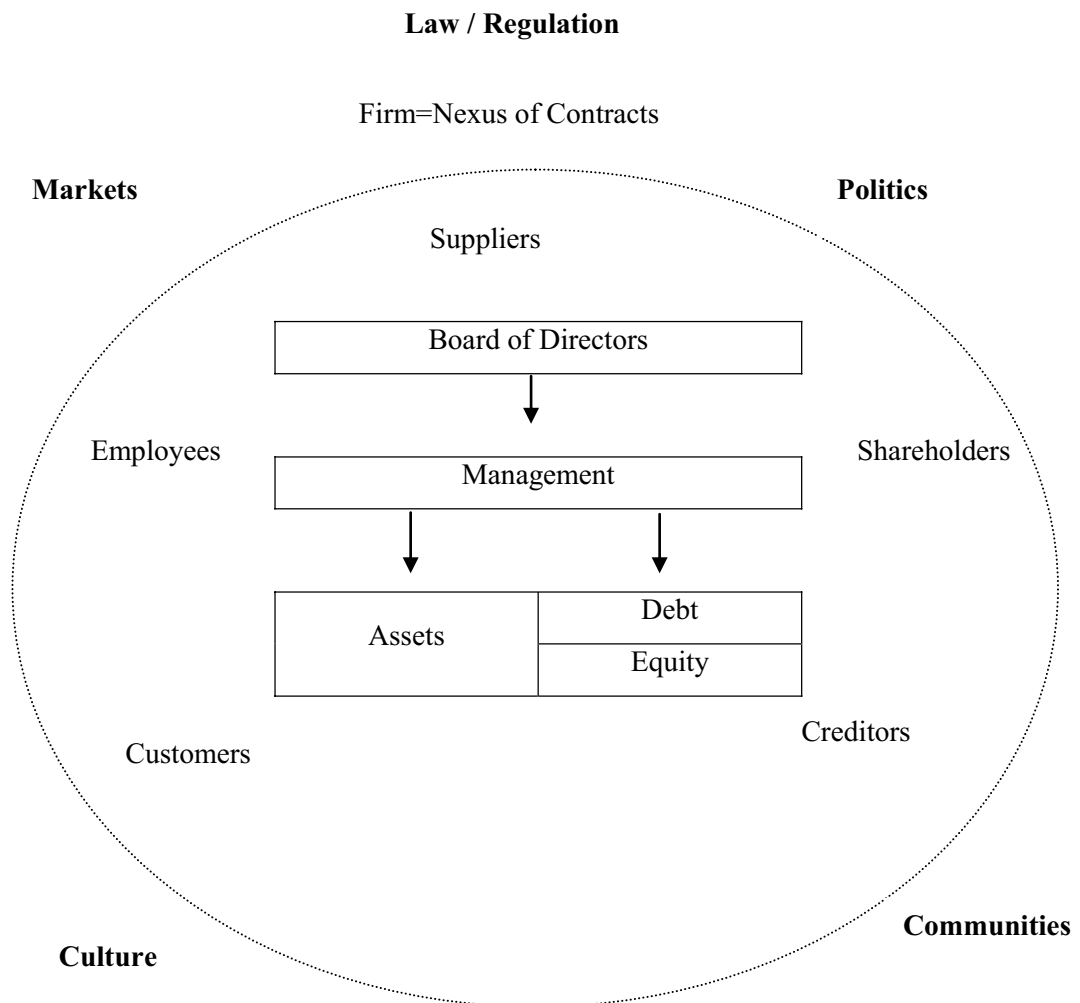
Figure 12: Capital providers and Governance Structure



Source: Gillan, 2006: 382

As indicated by Jensen and Meckling (1976), firms are consisted of different factors apart from the boards, managers, shareholders and debt holders. Should the general aspect is considered, corporate structure has other participants depicted in the below figure;

Figure 13: General Corporate Structure



Source: Gillan, 2006: 383

Above figure demonstrates the community, political environment, culture, law and legislation and markets, in which the firm managed highlighting the stakeholder perspective as indicated by Jensen (2001).

Stakeholders of the firms can be visualized in detail as following:

Table 8: Stakeholder Structure of Corporate and Their Concerns

Employees	Shareholders	Community	Government	Environmental Groups	Management	Customers Suppliers
Wage equity	Financial returns	Political corruption	Regulatory compliance	Pollution	Financial returns	Product safety (for people and the environment)
Workplace health and safety	Accurate and timely disclosure of operations and performance	Local employment	Pollution and other environmental issues	Biodiversity	Stock options	Customer satisfaction
Workforce diversity	Corporate governance, including executive compensation	Living environment/	Workplace health and safety	Regulatory compliance	Executive remuneration	Product performance
Job security and regulatory compliance	Increase in share prices	Environmental standards	Employment	Sustainability	Increase share value	Responsible advertising practices
Salary increase	Shareholder proxies	Regulatory compliance	Discrimination	Human rights	New technology	Product environmental impact
Dividends	Risk management	Health and safety	Social benefits/taxes	Socially responsible investments	Dividends/ financial performance	Regulatory compliance
Growth, prestige and reputation	Protection of rights/ dividends	Standard of living	Environment and safety standards	Regulatory compliance	Growth, prestige and reputation	Safety standards

Source: Yener, 2011, <http://www.slideshare.net/DocYener/introduction-to-corporate-governance-sep-17-2011>, 03.01.2014.

2.3.8.4. The Importance of Corporate Governance

Corporate governance is concerned as a balance between economic and social goals and between individual and communal goals. For efficient use of resources, and also for stewardship of those resources; good governance framework needs to be conducted. The aim is to align the interest of individuals, corporations and society as nearly as possible (Clarke and Branson, 2012: 15).

Relative to the globalization, even a minor deficiency occurred in a small firm may cause a bankruptcy of the firm concerned, and then entire economy, in which the firm operated and subsequently it may explicitly or implicitly affect the financial markets throughout world. Thus, as indicated by Gregory and Simms (1999), efficient corporate governance encourages using the resources of both the firm and other stakeholders effectively.

Claessens (2003) summarizes how good corporate governance system affects the growth and development in 5 categories as:

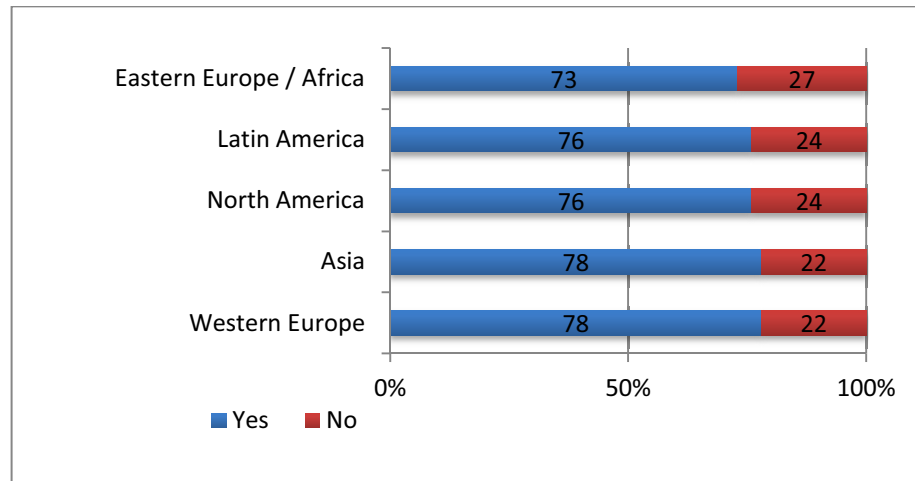
- 1. Access to the external financing sources increases enabling larger investments, higher growth and greater employment creation*
- 2. Cost of capital decreases enabling higher firm valuation*
- 3. Efficient operational performance enabling effective use of resources of the firm and also the country, in which the firm operated.*
- 4. Given the previous financial crises, good corporate governance reduces the risk of financial crisis and scandals which affect the financial stability and reveals economical and social costs.*
- 5. Better relationship between the firm and its stakeholders*

Global Market Sentiment Survey (2013) evaluated the residue of the recent financial crisis faced in 2008, and it is indicated that the firm-level actions most needed to be improve investor trust, confidence and market integrity, so does the global economic stability. Accordingly, corporate governance system undertakes the major role to increase firm-level actions.

Additionally, as indicated by Global Investor Opinion Survey (2002), well defined shareholder rights, strict control, high level of transparency and disclosure, and strong board of directors, which can be called well-governed firm encourages the majority of investors who are willing to pay a premium for the stocks of this kind of

firms. In this survey, percentages of investors pay premiums for good corporate governance vary by region and can be seen from the figure below:

Figure 14: Percentages of investors pay premiums for good corporate governance by regions



Source: Global Investor Opinion Survey (2002) <http://www.eiod.org/uploads/Publications/Pdf/II-Rp-4-1.pdf>. 15 July 2014.

2.3.8.5. Corporate Governance Systems

Separation of the ownership and control cause “Agency” or “Principle-Agent” problem in the firms. Principle-agent problem represents the conflicts of interest between management and the owners of the firm. Should the shareholders could not chase up the activities of the managers, then managers may tempt to use the sources of the firm for their own ends which at the expense of shareholders (Shleifer and Vishny, 1997: 740-741).

In the early 19th century, corporate form was structured on protection of the ownership rights. In the early 20th century, it turned into the managerial capitalism form with further protection for listed corporate and limited liability; and finally this form substituted with the protection of minority interests and mass ownership as a popular capitalism in the late 20th century. But, during this evaluation process of the capitalism, corporate law and practices reached different destinations by using different routes related with institutional development of Anglo-American, European and Asian forms of corporate (Clarke and Branson, 2012: 16).

Diversity of corporate governance systems is based on historical, cultural and institutional differences that involve different approaches to the values and aims of business structure. Due to this kind of differences, Rajan and Zingales (2003) categorized distinctive frameworks in differential economies as market-based systems, which is also called outsider (shareholder) model and relation-based systems, which is also called insider (stakeholder) model.

The system used in the United States and United Kingdom can be examples of market-based system, whereas the system used in Germany and Japan can be considered as relationship-based system (Şençitak, 2007: 8).

As indicated by Shleifer and Vishny (1997), legal protection of investors is the priority in the United States and the United Kingdom. Large investors are less common. Distinguishing functions of market-based system are as following (Nestor and Thompson, 2001: 21-22):

1. Equity ownership is dispersed with large institutional holdings
2. Shareholder interests have priority in the corporate law
3. Securities law and regulations heavily protect minority investors
4. Disclosure requirements are relatively strict

On the other side, Continental Europe, especially Germany, and also Japan whose financial governance generally relies on relationship-based system have usually been bank-centered. Distinguishing features of this system, which is also called insider model, can be summarized as following (Nestor and Thompson, 2001: 25):

1. Capital structures of the firms operated in such regions are more leveraged, as there is high dependence upon banks.
2. There is selective disclosure among insiders relative to the public disclosure
3. Regulations generally focus on reducing speculations instead of strict disclosure

Considering the rest of the world, ownership is heavily concentrated in families and large outside investors and banks are few. The comparisons of strengths and weaknesses of the international governance systems can be highlighted as following

Table 9: International Governance Systems Comparison

International Governance Systems Comparison			
	United States	Japan	Germany
Strengths	* Continuous discipline * Transparency	* Reduction of opportunism * Direct owner influence	* Multiple risk bearers * Mutual benefit
Weaknesses	* Inefficient	* Resistance to change	* Slow to react
Participant Claim Ranking	* Individuals * Institutions * Business Network * Employees * Government * Banks	* Business Network (Keiretsu) * Banks (Main Bank) * Government * Institutions * Individuals * Employees	* Banks * Business Network * Employees * Government * Individuals * Institutions
Governance Focus	* Capital Market	* Transaction Network	* Corporation
Measure of Governance Effectiveness	* Return on financial capital	* Return on Social Capital	* Return on Human Capital

Source: Rubach and Sebora, 1998: 169

Given the primary focus of each system, Rubach and Sebora (1998) explained that the US system, which emphasizes the free market relying on the market to exert control for corporate owners; that the Japanese system, which emphasizes to the business network, in which neither a firm itself nor market conditions are as significant as the conduct of business itself; and that the German system, which emphasizes to the corporation generating wealth instead of both the market and the conduct of business within the market.

Many countries have implemented corporate governance codes to which the corporates could adapt themselves and thus, in governance practices of public corporations, there have been remarkable debates on both the desirability and inevitability of convergence in recent years (Yoshikawa and Rasheed, 2009:388). Due to the globalization, which is a consequence of financial markets' integration, diversity of corporate governance systems have been converging to one another.

Investors, corporations and also entrepreneurs thus require the flexibility on governance arrangements providing unique business contexts that allow the corporations to deal with continuous changes in competitive environment, technologies, firm organization (Ștefanescu, 2011: 1303-1304).

2.3.8.6. Principles of Corporate Governance

Since 1990, there are three main principles referring to the corporate governance, which are The Cadbury Report (1992), The Principles of Corporate Governance (OECD, 1999 and 2004), and The Sarbanes-Oxley Act of 2002. General principles are presented by the Cadbury and OECD reports on proper governance of the firms worldwide. The Sarbanes-Oxley Act legislates the principles of the Cadbury (1992) and OECD (1999) reports implemented by United States (Auguilera and Cuervo-Cazurro, 2004: 419-421).

OECD (1999, 2004) addressed that corporate governance needs to be principle-based instead of rules and regulations. This need was also declared, repeated and renovated many times by several committees around the world. Hence, OECD principles endorsed by (OECD) ministers was implemented in 1999 and since then it has become an international benchmark for policy makers, investors, corporations and other stakeholders with its sound financial system (Abu-Tapenjeh, 2009: 557). The primary focus of these principles is both financial and other listed firms, and it provides guidance and recommendations for all shareholders and stakeholders participate in the corporate governance process (Şençitak, 2007: 19).

The soundness of these principles have been confirmed by its extensive use all over the world even the non-OECD members adopting themselves as indicated by Morck et al. (2005). Summary of the OECD principles and its implications are as following:

Table 10: Summary of the OECD Principles

Principle I	Ensuring the basis for an effective corporate governance framework	
	Annotation	The corporate governance framework should promote transparent and efficient markets, be consistent with the rule of law and clearly articulate the division of responsibilities among different supervisory, regulatory and enforcement authorities
Principle II	The right of shareholders and key ownership functions	
	Annotation	The corporate governance framework should protect and facilitate the exercise of shareholders' rights.
Principle III	The equitable treatment of shareholders.	
	Annotation	The corporate governance framework should ensure the equitable treatment of all shareholders, including minority and foreign shareholders. All shareholders should have the opportunities to obtain effective redress for violation of their rights.
Principle IV	The role of stakeholders in corporate governance	
	Annotation	The corporate governance framework should recognize the rights of stakeholders established by law or through mutual agreements and encourage active co-operation between corporations and stakeholders in creating wealth, jobs, and the sustainability of financially sound enterprises
Principle V	Disclosure and transparency.	
	Annotation	The corporate governance framework should ensure that timely and accurate disclosure is made on all material matters regarding the corporation, including the financial situation, performance, ownership, and governance of the company.
Principle VI	The responsibilities of the board.	
	Annotation	The corporate governance framework should ensure the strategic guidance of the company, the effective monitoring of management by the board, and board's accountability to the company and the shareholders

Source: OECD, 2004, <http://www.oecd.org/corporate/ca/corporategovernanceprinciples/31557724.pdf>. 08.12.2013

2.4. EMPIRICAL STUDIES AND DISSERTATIONS ON DETERMINANTS OF CAPITAL STRUCTURE DECISIONS OF TURKISH FIRMS AND INDUSTRIES

Many empirical studies and dissertations have been conducted on determinants of capital structure decisions of Turkish firms and Industries so far. These studies are summarized as follows:

2.4.1. Empirical Studies on Determinants of Capital Structure Decisions of Turkish Firms and Industries

Table 11: Empirical Studies on Determinants of Capital Structure Decisions of Turkish Firms and Industries

Author(s)	Sampling	Methodology	Findings
Özer and Yamak (2000)	101 lodging firms whose capacity less than 100 rooms in Istanbul, Turkey	Survey	1) Internal funds are used in the first place for the investments and current business activities 2) Top financial problems are insufficient earnings, higher input costs and cash outflows. 3) Pecking order theory is valid for the firms evaluated.
Booth, et al. (2001)	727 firms operating in developing countries; namely India, Pakistan, Thailand, Turkey, Malaysia, Zimbabwe, Mexico, Jordan, Brazil and South Korea for the period of 1980-1991	Panel Data Analysis	1) Determinants of capital structure in US and European Countries were found to be associated with developing countries 2) Firms with higher profitability have less leverage that supporting pecking order and asymmetric information theories. 3) Tangibility and leverage have direct relationship 4) Macroeconomic factors were found as GDP growth, inflation rate, capital markets growth
Güloğlu and Bekçioğlu (2001)	Top 42 manufacturing firms listed on Istanbul Stock Exchange (ISE) for the period of 1992-2000	Panel Data Analysis	1) ISE's development significantly affects the firms, especially small firms with short-and long-term total debt / equity ratio. 2) Capital structures of larger firms are not much more affected by ISE's development. 3) It was found that ISE's development do not damage to the banking sector even it contributes positive effect on sector's development.
Gonenc (2003)	127 the least and 271 the most industrial firms listed on ISE for the period 1990 to 1999	Panel Data Analysis	1) Characteristics of firms along with equity ownership by managers, financial institutions, the government, and stock market activities determine the capital structure choice of Turkish firms in a way similar to other developed and developing countries. There is one exception, growth opportunities.

				2) Both total debt and long-term debt ratio increase with growth opportunities of firms.
Doğukanlı and Acaravacı (2004)	66 manufacturing firms listed on ISE for the period of 1992-2002.	Panel Data Analysis		<p>1) Firm's total asset growth, development of banking sector, inflation, corporate tax rate, and the ratio of government internal debt to the nominal GDP have positive effect on capital structure</p> <p>2) Capital structure is negatively affected by profitability and tangibility</p> <p>3) According to the results, pecking order theory is valid for explaining of the capital structures of manufacturing firms</p>
Firatoğlu (2005)	196 non-financial firms listed on ISE for the period of 1992-2000	Panel Data Analysis		<p>1) Pecking order theory is valid for the firms evaluated as they use their internal funds if capital increase is needed. On the other side, group firms or affiliations' financing sources vary and they generally obtain debt instead of internal funds.</p> <p>2) The positive effect of growth opportunity to the leverage is significant for the group firms, affiliations.</p> <p>3) In crisis years 1995 and 1998, firms' financial structures were wholly affected, and they try to survive using internal funds.</p>
Erkan and Aydemir (2006)	438 firms operating in 38 province in Turkey	Survey		<p>1) According to the results, pecking order theory is valid for the firms evaluated as they apply to the retained earnings in the first place and subsequently external debt and if still capital is needed, stock issue is conducted</p> <p>2) The most important determinant on using external source was found as volatility of earnings and cash flows</p> <p>3) Shareholders have the most effect on financing decisions</p>
Akyüz et al. (2006)	851 firms employ under 250 employees, operating in 18 province in Black Sea Region of Turkey for the period of 1999-2001	Survey		<p>1) Firms are generally family-owned.</p> <p>2) Retained earnings are used in the first place if capital increase is needed.</p> <p>3) The reason of using internal funds by micro and small forest firms was found that cost of debt usage, and high transaction costs that banks charge.</p>
Sayılğan et al. (2006)	123 manufacturing firms listed on ISE for the period of 1993-2002	Dynamic Panel Data Analysis		<p>1) While firms size and growth opportunities on total assets positively affect leverage; profitability, tangibility, and non-debt tax shield negatively affect leverage.</p>
Total (2006)	910 observations of the firms listed	One way		1) Financing sources of the firms evaluated was found as equity, and long-

	on ISE for the period of 1997-2003	ANOVA, levene and scheffe test	term debt proportion was found only 1% among these firms. 2) Firms evaluated could not generate sufficient profits. 3) It was indicated that increasing leverage ratio don't affect return on assets and profit margin, but return on equity.
Çağlayan (2006)	Firms listed on ISE Industry Index	Quantile Regression Analysis	1) The relationship between the variables examined and the debt / equity ratio calculated with the use of total debt and short-term debt, is more significant at the high quantiles. 2) The analysis of coefficient signs demonstrate a structure similar to the Pecking Order Theory's expectation
Yıldır and Yücel (2007)	382 firms registered by Adana Chamber of Industry and Mersin Chamber of Industry and Trade.	Survey	1) Pecking order theory is valid for the firms evaluated. Because, internal funds are used in the first place, there is no target debt ratio, and hesitation on using debt financing.
Kandır et al. (2007)	Top 100 industrial firms in Turkey for the period of 2000-2004	Portfolio and Regression Analysis	1) The most important determinants that affect leading industrial firms' capital structures were found as sales volumes and profitability
Büyüktortop (2007)	237 real sector firms for the period of 1992-2003.	Panel Data Analysis	1) There are positive relationships between firm size, Non-debt tax shield, and growth rate and capital structure. 2) There are negative relationships between business risk and profitability and capital structure.
Yulaçlı (2007)	102 agricultural firms operating in Samsun, Turkey for the reaping period of 2001-2002	Survey	1) Farm equity equals 90.2% total assets, and thus livestock activities should be paid more attention to increase profitability. 2) Debt is rarely used, as interest rates are high, leading to increase cost of capital, and decreasing profitability.
Asarkaya and Özcan (2007)	20 banks operating in Turkey for the period 2002-2006	Panel Data Analysis with Generalized Method Moments (GMM) Models	1) Lagged capital, portfolio risk, economic growth, average capital level of the sector and return on equity are positively correlated with capital adequacy ratio and share of deposits are negatively correlated with capital adequacy ratio.
Kirkulak and Balsari (2007)	Firms listed on ISE for the period of 2003-2004	Panel Data Analysis	Firms provided trade credits to their customers to increase sales and financed themselves with debt. Furthermore, net monetary position profit

			(loss) item, that shows how firms manage their monetary assets and liabilities under inflationary conditions, has a significant positive relationship with profitability. Firms that have higher net monetary position profit, and lower inventory are more profitable.
Sakarya (2008)	8 tourism firms listed on ISE for the period of 1986-2006	n/a	1) Firms in tourism industry in Turkey rarely go to the public for their capital needs. 2) Pecking order theory is valid for the firms evaluated as they use their internal funds if capital increase is needed.
Akkaya and Güler (2008)	Manufacturing firms listed on ISE	Panel Data Analysis	n/a
Karadeniz et al. (2009)	65 observations of 5 lodging firms listed on ISE for the period 1994-2006	Dynamic Panel Analysis	1) Effective tax rates, tangibility of assets, and return on assets are related negatively to the debt ratio, while free cash flow, non-debt tax shields, growth opportunities, net commercial credit position, and firm size do not appear to be related to the debt ratio. 2) Although the findings partially support the pecking order theory, neither the trade-off nor the pecking order theory exactly seem to explain the capital structure of Turkish lodging companies.
Yıldız et al. (2009)	Manufacturing firms listed on ISE for the period of 1998-2006	Panel Data Analysis	1) There is negative relationship between capital structure and profitability, and positive relationship between capital structure and size affirms the Pecking Order Theory; while the finding that there is positive relationship between capital structure and growth supports the Static Trade-off Theory. 2) Tangibility is found significant only in short-term capital structure model, besides, tax and non-debt tax shield is found insignificant in all three models. 3) The analysis of the outcomes led to the conclusion that the Pecking Order Theory provides the best explanation for the capital structure of those firms listed Istanbul Stock Exchange in Turkey.
Korkmaz et al. (2009)	16 automotive and auto parts industry firms listed on ISE for the period 2003-2006	Panel Data Analysis	1) The capital structure decisions of the automotive and auto parts industry firms are mostly influenced by variables such as return on equity (ROE) and non-debt tax shields. This finding supports with the pecking order theory, which argues that firms' leverage decreases when the

			profitability is high.
Demir and Baştürk (2009)	129 firms listed on ISE Industrial Index for the period 2001-2007	n/a	<p>1) Changes in capital structure have negative effect on net profit and profit per share in single businesses, which have domestic (Turkish) capital.</p> <p>2) Obviously, it is clear that being part of another business for a foreign company is not effective over the relationship between profitability and changes in capital structure.</p>
Ata and Ağ (2010)	42 metal industry firms listed on ISE for the period of 2003-2007	Panel Analysis Data	<p>1) All the determinants of firm characteristics; namely liquidity ratio, interest coverage ratio, firm size and growth ratios, have a negative impact except firm size on capital structure.</p>
Fan et al. (2012)	36,767 firms from developed and developing 39 countries for the period of 1991-2006. 201 firms were evaluated from Turkey	Panel Analysis, Generalized Method Moments (GMM) Approach Data	<p>1) The highest 5 leverage ratios are observed in South Korea, Indonesia, Brazil, Portugal, and Pakistan, while the lowest 5 are observed in Australia, South Africa, Canada, United States, and Turkey</p> <p>2) The lowest 5 median long-term debt ratios are observed in China, Greece, Turkey, Taiwan, and Thailand</p> <p>3) According to the results, Tangibility, profitability and market-to-book (can be considered as growth opportunities) were negatively correlated with leverage, while size positively correlated.</p>
İskenderoğlu et al. (2012)	13 banks listed on ISE for the period 2004-2009	Arellano-Bover / Blundell-Bond system, generalized Method Moments (GMM) analysis	<p>1) Bank profits persist, while the ratios with regarding to capital structure decisions negatively affect profitability.</p> <p>2) Nevertheless size and growth positively affects profitability.</p> <p>3) There is no evidence that proves corporate tax ratio affects profitability.</p>
Doğan (2013)	Insurance firms listed on ISE for the period 2005 to 2011	Multiple Regression and Correlation Analysis	<p>1) Loss ratio, financial leverage ratio and increase in liquid assets effect negatively in profitability of insurance companies, however increase in assets size has a positive effect.</p> <p>2) Between the age and profitability of insurance companies there are negative and statistically significant results detected.</p>
Okuyan (2013)	23 banks operating in Turkey for the	Panel Analysis Data	<p>1) Risk, size, deposits and loans are negatively; economic growth and</p>

	period of 2002Q4 to 2012Q1	Analysis	return on assets are positively correlated with capital adequacy ratio
Halaç and Durak (2013)	Firms listed on ISE for the period of 2003-2010	Arellano-Bond Dynamic Panel Data Analysis	1) Tobin q and lagged value of debt/equity variables don't have any significant effect on the financing decision of the firm, whereas interest rate on Turkish Lira, Producer Price Index, exposure risk of Euro are significant in model
Sarioğlu et al. (2013)	42 cement, automotive and information technology firms listed on ISE for the period 2007-2011	Panel Data Analysis	1) There is no significant relation between long-term debt ratios and any independent variables in the cement and automotive industries. 2) Firm size and asset tangibility are found to be significant in explaining the long-term debt structure of information technology firms. 3) Debt ratio is positively related to firm size both in the cement and information technology industries, which gives support to trade-off theory. 4) Debt ratio is positively related to growth rate both in the information technology and automotive industry in accordance with the capital structure theory. 5) The results show that the debt ratio sensitivities of the Turkish firms to the explanatory variables differ significantly between the three industries studied

As it is seen above, 29 empirical studies have been conducted on examining the determinants of capital structure decisions of Turkish firms either listed on BIST or unlisted. 8 studies have examined without sectoral distinction. 14 studies have examined the manufacturing firms, 4 of them are related with financial firms, and only 3 of them is related with the service sector, that one of them is on tourism and other two are on lodging firms. In the view of the reachable results that linked to the capital structure theories, 12 of them concluded that pecking order theory is valid for the sample firms, and 2 of them support trade off theory. Only 1 study could not find any significant result to be linked to the theories.

Because our sample firms belong to the transportation and logistics industries, which can also be referred as one of the service sectors, the results of the studies on tourism and lodging firms are considerably important due to benchmarking. In this context, Sakarya (2008) analyzed the firms operating in the tourism sector, and listed on ISE for the period of 1986-2006. The time span covers very long term as it might be due to the lack of the firms' reachable data as only 8 firms could be investigated in this study. According to the results of this study, the tourism firms rarely choose capital markets, and pecking order theory is valid for this study as they initially use their internal fund for their capital increase. On the other side, Özer and Yamak (2000) conducted a survey to the 101 lodging firms, and their findings support Sakarya (2008)'s that pecking order theory is valid for the firms evaluated as they use their retained earnings in the first place for their investments or current business activities. Karadeniz et al. (2009) also investigated lodging firms for the period of 1994-2006 using panel data analysis, and they could not find any significant explanation whether the results are consistent with any theory.

2.4.2. Dissertations on Determinants of Capital Structure Decisions of Turkish Firms and Industries

Table 12: Dissertations on Determinants of Capital Structure Decisions of Turkish Firms and Industries

Author	Grade	Sample	Methodology	Findings
Şenyüz (1989)	Master	Turkish manufacturing firms for the periods of 1976-1979 and 1982-1986. Data obtained from Capital Market Board of Turkey Handbook	Regression Analysis	Positive and significant relationship between leverage and profitability for years 1976-1979. This relationship was negative for the years 1982-1986. Regression coefficients of other variables are generally insignificant at a 957. confidence level
İçerli (1995)	Master	27 manufacturing firms listed on ISE over 1986-93	Linear Regression	While firms with sufficient retained earnings use them for their investments in the first place, others apply to the debt with -70% correlation for both case.
Zor (1996)	Master	20 firms listed on ISE over 1986-95	n/a	Capital cost is not independent from the capital structure; and therefore the results have confirmed the traditional approach.
Durukan (1997)	Ph.D.	Cross-sectional data for 68 firms listed on ISE over 1990-95	The least squares method and correlation analysis	1. The Istanbul Stock Exchange (ISE) firms should determine their optimal capital structure based on particularly such variables as profitability and non-debt tax shield. Other variables suggested by the empirical finance literature should also be considered. Establishing and maintaining such structure will definitely improve their market performance. 2. The information available to the investors regarding the optimal capital structure will reduce the information asymmetry between the investors and the insiders. Consequently, the presence of informed and enlightened investors in the market will increase the information efficiency of the ISE. 3. Due to the high inflation rate prevailing in the Turkish Economy, the firms are unable to raise sufficient long-term funds in the capital markets. Such situation will negatively affect firms' long-term market performance. Therefore, monetary and fiscal policy authorities should take all the necessary measures to decrease the rate

Kula (2000)	Ph.D.	80 SMEs located in Afyon		of inflation to the acceptable levels
Kara (2000)	Master	192 questionnaires obtained from agricultural firms located in Erzurum and Kars provinces of Eastern Anatolia	Survey	Rather than optimal capital structure approach, pecking order theory is significant for the capital structure decisions of sampling firms
Yenice (2001)	Master	37 companies operating in the Metal Main Industry and Metal Goods, Machinery and Equipment Production Industry, which are the sub industries of the production industry in ISE, over 1999 and 2000	n/a	The most important problems confronted in getting credits were found to be high interest rates and availability of the loans just for the ones not really in need of credits.
Kımay (2001)	Ph.D.	23 hotels (4 of them were listed on ISE) were analyzed for the period 1995-1997	Variance, Regression and Correlation Analysis	The company value is not affected by the equity structure, and the company productivity has an opposite relation with the equity structure.
Yücel (2001)	Master	Stone, Land based and metal firms listed on ISE for the period 1999-2000	Regression and Correlation Analysis	Capital structure decisions have no effect on neither lodging firm value nor profitability of the lodging firm, leading to the M&M view.
Yener (2002)	Ph.D.	Among 500 leading firms declared by Istanbul Chamber of Industry, 70 of them that listed on ISE were analyzed for the period of 1992-1999	Multiple Regression, Panel Data Regression	The capital structure doesn't affect to the common stock price and earnings per share, but the dividend policy and earnings per share could affect the stock price.
Bahçeli (2003)	Master	Industrial and trade firms	n/a	As firm IPOs are rare, agency related costs have no effect on capital structure decisions. Institutionalization also has also not developed in Turkey due to lack of professional manager use. As tax and incentive procedures are often changed in a short-term period, uncertainty occurs when the firms invest in long-term basis.
				Company size, company profitability and asset turnover rate are

		listed on ISE for the period 1995-2000		effective on capital structure.	
Akın (2004)	Master	70 firms listed on ISE chosen in terms of simple random sampling method for the period of 1998-2002	Regression-Panel Data Analysis, t test	Capital structure, cost of capital and firm value are statistically significant for the firms evaluated, and they were interpreted year by year.	
Duman (2004)	Master	50 firms from Holding, Food, Textile, Stone and Brick, Chemistry, Metal sectors on ISE chosen in terms of simple random sampling method for the period 1992-2002.	Multiple Regression Model in terms of least squares method	1. There is a direct relationship between dividend policy and capital structure for the chemistry, Metal, stone and brick sectors. 2. There is not a direct relationship between dividend policy and capital structure for Textile, food, and holdings sectors.	
Acavracı (2004)	Ph.D.	66 firms in the manufacturing sector traded on ISE for the period of 1992-2002	Panel data analysis	Growth rate of firms, development of banking sector, inflation and corporate tax rate have positive effect on leverage; profitability has negative effect on leverage. However, leverage ratio has been affected negatively by tangibility and positively by total government domestic debt stock/nominal gross domestic product ratio. Furthermore, it has supported pecking-order theory and size of firms has been effective on leverage.	
Kaya (2004)	Master	1243 observations of the firms listed on ISE were evaluated for the period of 1992-2001 by using SPSS programme	n/a	The companies prefer not to take a loan as their profit increases. In the market, the companies, which have been running for a long time, prefer to use their own capital instead of borrowing due to having a powerful financial structure.	
Cengiz (2005)	Master	11 chain stores listed on ISE for the period of 1995-2004 were analyzed	Regression analysis	It was found that while inflation and GDP have a positive effect on capital structure; developments of banking sector, tax variability and doubtful income/total income ratio have a negative effect. Also, standard deviation of sells/ average sells ratio has positive effect especially on the ratio of long-term debts to equity.	
Turan (2006)	Master	63 firms listed on ISE chosen in terms of random	Multiple regression	Determinants of capital structure are mostly affected both each other and internal dynamics of the market. It was indicated that firms'	

		sampling for the period of 1992-2002 were evaluated	analysis	capital structure decisions are remarkably affected by general economy and also unhealthy conditions of the market instead of determinants argued in the literature.
Yücel (2006)	Master	382 manufacturing firms registered on Adana and Mersin Chamber of Industries	Survey	Firm attitudes are fit with pecking order theory. Trade off theory does not provide any supportive results other than that financial distress and bankruptcy risk are important
Özaltın (2006)	Master	344 observations for the firms listed on ISE for the period of 2000-2003.	Correlation Analysis	There are no particular relationships between the changes in the capital structure of the firms and market value of the firms, according to the results of the correlation analysis
Şişman (2006)	Master	33 manufacturing firms listed on ISE for the period of 1992-2002	Multiple regression analysis	Determinants of capital structure that analyzed in this study were found as consistent for 6 companies, and rest were not
Kabakçı (2007)	Ph.D.	22 firm in food industry listed on ISE for the period of 2000-2005	Generalized Least Squares model	It was found that there is a negative relationship between profitability and leverage as supported by pecking order theory
Cengiz (2007)	Master	10 Regional Agriculture Unions and Cooperatives for the period of 2001-2005 were analyzed	Multiple regression analysis	Increases in sales expenditure directly increase need for equity capital; regarding statistical techniques partial correlation analysis produced more stable predictions and consistent results with that of multiple regression analysis in determination capital structure.
Büyükkortop (2007)	Master	Multinational firms listed on ISE for the period of 1992-2003	Multiple regression analysis	There is a positive relationship between the size of the firm variable and capital structure, firm tax shield outside debt, tax level and growth rate. On the other side, negative relationship between the size of the firm and enterprise risk, and profitability
Aslan (2007)	Master	Firms listed on ISE for the years 2001, 2003 and 2005	Regression analysis	Macroeconomic factors, cash flows and debt were found 89% effective on firm value, and also found that macroeconomic factors were directly related with credit risk
Dirim (2008)	Master	49 non-financial firms listed on ISE for the period of 2005-2007 were analyzed	Regression Analysis, ordinary least squares model	The relationship between corporate governance and capital structure is statistically significant and the direction is positive for board size and ownership concentration and it is statistically insignificant and negative for outside manager ratio in Turkey.

Karadeniz (2008)	Ph.D.	5 lodging firms listed on ISE for 1994-2006 time period and 7 lodging firms listed on ISE for 2000-2006 time periods were investigated. Also, unlisted 163 firms also examined by using survey	Dynamic fixed effects panel analysis and fixed effect estimation models and survey	Although analysis results reveal that neither trade-off nor pecking order theory seem to exactly explain the capital structures of Turkish lodging companies in the ISE, pecking order and trade-off theories appear to unveil the capital structures of Turkish lodging companies in terms of variables. Additionally, a survey is used to examine the determinants of capital structure decisions of no quoted on ISE lodging companies. Findings of this survey suggest that capital structure decisions of lodging companies, which are no quoted on ISE, are in line with pecking order theory
Burca (2008)	Ph.D.	74 non-financial firms listed on ISE, 43 non-financial firms listed on Brazil Stock Exchange (Bovespa), 65 non-financial firms listed on New York Stock Exchange (NYSE) and 42 non-financial firms listed on London Stock Exchange (FTSE) between 1996 and 2006.	Correlation analysis, portfolio analysis and panel regression analysis	In all stock exchanges there is a positive and statistically significant relationship between stock returns and debt ratio. This relationship is more significant in NYSE and FTSE as compared to Bovespa and ISE. The results showed that ISE and Bovespa have some common characteristics, so does NYSE and FTSE
Yıldırım (2008)	Master	Turkish Real Estate Investment Trusts (REITs) listed on ISE for the period of 1998-2007	Tobit regression and panel data models	Turkish REITs employ little long-term debt in their capital structure and there exists strong short-term debt dominance in the sector. Capital structure determinants that are significant in developed and developing countries are also significant in Turkish REITs' debt financing choices.
Başaran (2008)	Master	16 automotive and auto parts industry firms listed on ISE for two time periods as 1994-2002 and 2003-2006	Panel data analysis	The capital structure decisions of the automotive and auto parts industry firms are mostly influenced by variables such as return on equity (ROE) and non-debt tax shields. This finding supports with the pecking order theory, which argues that firms' Leverage decreases when the profitability is high.
Fettahoğlu (2009)	Ph.D.	194 manufacturing firms listed on ISE for the period	Anova and Panel Data	There is a positive relationship between ownership concentration and leverage, and negative relationship between foreign ownership and

		2005-2007	Analysis	leverage.
Yurttadur (2009)	Ph.D.	34 Small Manufacturing Enterprises (SMEs)	Survey	SMEs those have a sound capital structure and those use its own capital rather than being loan contracted have a positive growth.
Javadov (2009)	Master	136 manufacturing firms listed on ISE for the period of 1996-2004	Panel Data Multiple Regression Analysis, Ordinary Least Squares Model	Profitability, tangibility and market capitalization to GNP ratio have negative relationship with total and short-term leverage ratios. In contrast to this, tangibility and market capitalization to GNP ratio revealed a positive relationship with long-term debt ratio. Size, money supply to GNP ratio and interest rate are found to be positively related to leverage ratios
Yükeri (2009)	Master	112 firms in the manufacturing industry, located in Adana Hacı Sabancı Organized Industrial Zone	Survey	Firms do not have a targeted specific debt ratio and internal funds are the first choice by the shareholders. External funds are used only when internal funds are insufficient and securing financial flexibility has importance on corporate debt decisions.
Terim (2009)	Ph.D.	134 manufacturing firms listed on ISE for the period of 2000-2007	Multiple regression analysis	There are statistically significant relationships between capital structure, tangibility, profitability; and growth opportunities, while asserting that strong but only economically meaningful relationships with regard to firm size and non-debt tax shield seem to exist.
Uysal (2010)	Master	. The analysis of this model covers 10 sectors from 1996 to 2008	Panel data analysis	Non-debt tax shield reveals inverse relation with debt level; however, growth opportunity, tangibility, profitability and size reveal positive relation with leverage ratio. Our results show strong evidence for the trade-off theory.
Dinçergök (2010)	Ph.D.	Manufacturing firms that have been quoted on the stock exchanges of five countries whose economies were parallel to each other in the recent past (Turkey, Brazil, Indonesia, Mexico, Argentina) for the period of 2000-2007	Panel data analysis	Tangibility has a positive effect on capital structure; but profitability and growth opportunities negatively affect leverage ratios. There is not a unity on the effects of other factors. Also it is found out that the effects of tangibility, profitability and growth opportunities are similar to developed countries.
Seyhan (2010)	Master	30 food and cement firms	Correlation	There is a statistically significant positive relationship between firms'

		listed on ISE for the period of 2003-2009	and Regression Analysis	capital structure and cost of capital
Köken (2010)	Master	Manufacturing firms listed on ISE for the period of 2004-2007	Panel data analysis	Profitability, asset growth and tangibility are important in capital structure formation process. In contrast to the pecking order hypothesis, big firms utilize more debt. Finally, findings have suggested that high overvaluation of the firm is treated as good signal by credit supplying authorities which provides extra opportunity to such firms to raise more debt.
Yıldırım (2011)	Master	88 firms operating industry sector listed on ISE and Lisbon Stock Exchange for the period of 2005-2009	Panel data analysis	There is a positive relation among leverage ratios with non-debt tax shields, growth opportunities and profitability being independent variables in Turkish and Portuguese companies. In addition it was found negative relation between leverage ratios with firm size and firm risk in both country firms. As those results supports the trade off theory and the pecking order theory.
Yakar (2011)	Master	Firms listed on ISE for the years 2000-2009	Panel data analysis	There is negative relationship between capital structure and size affirms the Pecking Order Theory; while the finding that there is positive relationship between capital structure and grow supports the Static Trade-off Theory. Moreover; tangibility is found insignificant in all models. The analysis of the outcomes led to the conclusion that the Pecking Order Theory Provides the best explanation for the capital structure of those firms listed Istanbul Stock Exchange in Turkey.
Eser (2011)	Master	20 Firms listed on ISE Corporate Governance Index for the period of 2008-2010	Panel data analysis	The increase in the number of board members positively affects financial leverage, but the proportion of independent members has a negative effect on financial leverage. Because of return on assets (ROA), has a positive effect on financial leverage, companies in Turkey in general resort to debt rather than equity financing. This result supports to trade-off theory. In addition, the corporate governance practices in our country are still weak.
Cakova (2011)	Master	Manufacturing firms listed on ISE for the period of	fixed effects model with	Capital structure decisions of Turkish SMEs are in line with pecking order predictions.

		1998-2008 with 44,029 observations	unbalanced panel data	
Kuğu (2011)	Ph.D.	20 firms listed on ISE from metal products, machinery and equipment construction industry sector, and 22 firms listed on ISE Chemistry industry sector for the period 2006-2008	Calculation of Components of Economic Value Added	Only 8 firms evaluated could create economic value added, rest could not lead to the unsuccessful performance on firm value.
Karaaslan (2012)	Ph.D.	65 firms listed on ISE Industry Index for the period of 1994-2010	Panel data analysis	The Total debt to market value ratio is the most statistically significant variable having the most positive impact on both nominal and real stock returns in all periods analyzed.
Irk (2012)	Master	123 firms listed on ISE Manufacturing Industry Index for the period of 2000-2010	Panel data analysis	The analysis of outcomes led to conclusion that the Pecking Order Theory provides the best explanation for the capital structure of those firms listed on ISE in Turkey.
Karakuş (2012)	Master	63 firms listed on ISE for the period 2004-2009	Panel data analysis	Generally capital structure has an effect on firm value, however, this effect differentiate between groups that have different asset levels.
Sayman (2012)	Ph.D.	177 manufacturing firms listed on ISE for the period 1998-2009	Panel data analysis	Firms which have fewer shareholders choose higher-risk capital structures because of increasing firm value. Furthermore, provided that capital intensity becomes higher, firms must hire professional managers.
Şahin (2012)	Master	Sport firms listed on ISE for the period 2005Q1 - 2011Q3	Panel data analysis	Return on assets (ROA), size and the natural logarithm of sales of the firm have statistically significant effects on its capital structure. The other independent variables, the tangible assets of the firm, have no statistically significant effects on the firms' capital structure.
Akman (2012)	Ph.D.	79 Industrial firms listed on ISE chosen in terms of random sampling for the period of 2003-2011	Panel data analysis	Capital structures of Turkish manufacturing companies have negative relation with profitability, tangibility, liquidity and asset utilization rate; while positive relation is proved with growth rate and market timing. Size, tax rate, non-debt tax shield and financial risk have no significant effect on capital structure decisions.
Ayyıldız (2013)	Master	64 observations of energy	Cointegration	Pecking order theory is valid on Turkish energy sector firms due to

		firms whose data obtained from Turkey Central Bank (TCB) for the period of 1996-2011, and 79 energy firms operating in Europe for the period of 2009-2012	for the Turkish firms, Panel data analysis for the European Analysis	the decrease of debt ratio resulting from an increase on the profitability. However, the increase of liquidity triggers a decrease on debt ratio of European firms, which can be explained by pecking order theory. However, the increase of European energy firms' turnover ratio on tangible assets and equity results an increase on debt ratio, which can be explained by trade-off theory.
Aydın (2013)	Ph.D.	104 firms listed on Borsa Istanbul (BIST) for the period of 1992-2011	Generalized Least Squares model	The companies have preferred owner's equity in capital structure decisions including periods of crisis as well. It is also seen that equity weighted capital structure causes the ratios of return on sales and return on assets positively affected while return on equity negatively affected. Results of the analysis are also seen to be compatible with the theory of pecking order theory.
Canki (2013)	Master	27 manufacturing firms listed on BIST for the period of 2005-2012	Panel data analysis	Pecking order theory is valid for the models on return on assets and trade-off theory is valid for the models about return on equity.
Mak (2013)	Ph.D.	100 firms which are among the top 1000 firms of Istanbul Chamber of Industry, and listed on BIST for the period 2005-2011	Panel data analysis	The major findings of the study with respect to financing decisions of firms provide significant and positive impact of tangibility on long-term debt ratio; however it turns out to be inverse for total debt ratio. In addition, profitable firms tend to have lower leverage; and larger companies tend to have higher debt ratios compared to small ones.
Ünal (2013)	Master	526 firms whose data obtained from TCB for the period of 2002-2011	Chi square test and CHAID Decision Tree	297 of 526 firms, the capital structures have no risk but 229 of them (43.6%) have risky capital structures. Also, 140 of the 526 firms (26.6%) have negative (bad) financial performance whereas 386 of them (73.4%) have positive (good) financial performance. When the firms are analyzed individually, this relation is valid for the private hospitals and medical firms.

As it is seen above, 54 dissertations whose data have been gathered via Board of Higher Education (YÖK) have been summarized. Others have been eliminated due to the lack of data, and irrelevancy with our study. To sum up, 34 dissertations evaluated the determinants of capital structures of manufacturing firms (some of them considered industrial index, some of them focused on sectoral basis such as automotive, agriculture, food, chemistry, metal etc., and all of them were considered as manufacturing firms) either listed on ISE by using statistical data or unlisted by applying surveys. According to the reachable results that were explained based on the theories, pecking order theory is valid for 15 of them, and 4 of them is consistent for both trade off and pecking order theories. 14 dissertations have been conducted based on randomly sample selecting and thus consist of the results belong to both manufacturing and service sectors, and the results cannot be referred to our study. Additionally, 2 dissertations are related with the multinational firms listed on both ISE and other stock exchanges. On the other side, few studies analyzing determinants of capital structure of Turkish service sector exist. 2 dissertations have analyzed the determinants of capital structure of Turkish lodging firms both listed on ISE and non-listed. According to the results of Kınay (2001), Capital structure decisions have no effect on neither lodging firm value nor profitability of the lodging firm, leading to the M&M view. Karadeniz (2008) could not explain the results according to neither trade-off nor pecking order theories for the lodging firms listed on ISE. However, according to the survey findings of the non-listed lodging firms, capital structure decisions of lodging firms are in line with pecking order theory. Yıldırım (2008) evaluated Turkish REITs and found that they rarely employ long-term debt in their capital structures. Finally, Şahin (2012) investigated sport firms listed on ISE and found that profitability and size have statistically significant effects on capital structures of these firms. However, tangibility is not.

CHAPTER THREE

ANALYSIS OF BORSA ISTANBUL TRANSPORTATION INDEX

3.1. AIM OF THE STUDY

The aim of the empirical analysis in this study is to analyze how the determinants of capital structure affect financing decisions of the firms operating in the transportation industry in Turkey.

3.2. RESEARCH DATA

In transportation industry, especially in shipping, it is hard to obtain the financial figures neither from their websites, nor from direct contact. Therefore, companies listed on Borsa Istanbul Stock Exchange (BIST) Transportation Index have been used as a sampling for this study. To analyze the determinants of capital structure of the companies in BIST Transportation Index, a panel data analysis is applied by using Stata 11 statistics software, for the period of 2002-2013. Financial data of the sampling firms have been gathered via using financial matrix of Finnet 2000 online database, and also the data regarding corporate governance practices have been hand-collected by using the publicly available annual reports of each firm. To reach the sufficient data, firstly the start point for collecting data was chosen from the end of the 1989. However, it is seen that considering the start point either 1989 or 2002 does not affect the findings, since 45 of 144 observations belong to this period for 4 of 11 firms, and also corporate governance variables are publicly available since 2002. Therefore the time span during the analyzing process covers the period of 2002-2013 instead of 1989-2013.

As of 2013 there are 10 companies on the subject Index as corporate structure of Uçak Servisi Anonim Şirketi (USAŞ) has changed and it is not listed any longer on the subject index. Thus, for this company, the figures until 2012 have been obtained.

The companies analyzed are divided into three categories as ship managements and freight forwarders, companies operating in the aviation industry and others and they are introduced by indicating field of work, milestones, and important points as follows:

3.2.1. Ship Managements and Freight Forwarders

3.2.1.1. GSD Marin

GSD Denizcilik Gayrimenkul İnşaat Sanayi ve Ticaret Anonim Şirketi (previously "Tekstil Finansal Kiralama Anonim Şirketi") resolved in its Board of Directors meeting dated 25.05.2011, to change the field of operations of the company, and to make necessary amendments on the Articles of Association, due to the contracting leasing business. The resolutions regarding the change of field of activity and title was submitted to the approval of the shareholders on 24.08.2011 at an Extraordinary General Assembly meeting, once the necessary authorizations were received from Banking Regulation and Supervision Agency (BRSA), Capital Markets Board (CMB), and other relevant government authorities. The required amendments of articles of association were registered on 26.08.2011 and were published on the Trade Registry Gazette of Turkey dated 06.09.2011 and numbered 7893.

After a complete analysis on the new fields of activities, the company concluded to maintain their businesses on maritime freight industry, because with the gradual dissipation of the effects of the global economic crisis and resumed growth of global trade. Subsequently, they analyzed the current conditions of the sub-segments of this industry such as container, tanker and dry cargo freight considering the projected vessel supply, cargo volume, freight charges, vessel prices, and situation of competition. After all evaluation, they decided that dry cargo freight market was an attractive field for investments. Then, this decision was implemented with an agreement on 10.04.2012 to have two dry cargo freighters with a capacity of 39,000 Deadweight (DWT) constructed.

The Board of Directors of GSD Marin signed an agreement with Hyundai Mipo Dockyard Co. Ltd on 10 April 2012 for the construction of 2 dry bulk carrier ships with 39,000 dwt transportation capacity per ship to be controlled by the affiliation of GSD Marin; namely, Dodo Maritime Ltd. and Cano Maritime Ltd. established in Malta.

The delivery of the ships has been taken on 7 May 2013 by Dodo Maritime Ltd. and Cano Maritime Ltd., being wholly-owned by the company, and they have started their dry cargo freight operations as of the mentioned date. As of 31 December 2013, concentrated ownership belongs to the GSD Marin with 54.45%, and public float represents 45.54% of total shares. (<http://en.gsdmarin.com.tr/gsd-marin/detay.aspx?SectionID=C%2bUiYrFPN%2b1bgcDirWzvwA%3d%3d>, 02.06.2014).

3.2.1.2. Reysaş Logistics

Reysaş Logistics was founded in 1989 with its head office in Ankara, and has started its commercial operations with a limited number of limited resources. In 5 years, Reysaş has managed to reach a remarkable growth with both the customer profile and thus the fleet operated. As of 2014, they operate more than 1500 vehicles both in Turkey and abroad.

Reysaş has started providing its services in the logistics sector, in the areas of Vehicle Transportation, Logistics, International Transportation, Fuel Transportation, Forwarding and Warehousing. Reysaş Logistics has increased its market share in the sector thanks to the extended operations to international cargo transportation in the territories of the Netherlands and Kazakhstan that contributed to the growth and development of the firm within a short period of time. The numbers of operations achieved by the end of 1994 have exceeded 3000.

As the company noticed the importance of the technological improvement, they gave priority their investments related with technology. Thus, Reysaş is acknowledged as the first company that has employed satellite systems in the monitoring of vehicles. By the way of the satellite systems, communication with the

drivers in writing through electronic media, and accordingly, the data relating to shipments, distances and costs can be determined through computers.

Warehouse management services with frigorific and textile warehouses equipped with high technological equipment consisting of RFID systems are provided to the clients. In automotive industry, while “Just In Time” distribution and accumulation services are realized, transfer of information is provided to the customers and the suppliers of the customers in electronic media through internet based applications (Oplog-Optimization Logistics), maximum capacity utilization and performance is ensured through vehicle/load optimization. In addition to this, the performance of the driver, loading and discharge periods are monitored by using the driver-monitoring system (Poliroute).

With semi-trailers, most of which are very young, with characteristics such as the capacity to carry 6, 2 or 4 cars, Frigorific equipment, Upper Decks, Suspension Equipment, Lift Equipment, “Seagull Wings”, and with other types of commercial vehicles, Reysaş is capable of meeting varying types of demands, and offers a wide range of transportation services to the major corporations. A brief examination on the current place of Reysaş in logistics sector, its customer profile and its turnover, will show that the company has accomplished a significant progress within a period of 11-12 years.

The official headquarters of Reysaş is in İstanbul; and the company runs administrative branches in Ankara, Adapazarı, İzmit, Bursa, Adana, Antalya. (http://www.reysas.com/en/company_profile.aspx, 21.07.2014).

3.2.1.3. Latek Logistics

The consolidated companies under Latek Lojistik Ticaret A.Ş. (“the Company” or “the Main Partnership”) are its affiliates namely LTK Warehousing, Latek Bandırma Port Management, and Latmar Ship Management, Latmar Shipping and Trading, and Latek East Africa Limited. The concentrated ownership belongs to Erdogan Family with 50.13% of the total shares.

Latek Logistics started international seaway and airway operations in logistic industry in 1999, and subsequently international road transportation in 2001. In 2002,

with BEKO Electronics, they expanded their operations by applying supply chain management such as storing and international distribution. In 2005 and 2006, the company started railway operations including multimodal transportation operations in the service range with Latek Express block train. In 2010, their shares started being traded in the primary market of the ISE, and also in the same year, they started to operate the handling and transportation steps at Bandırma International Port.

The company also has customs and non-customs warehouses in Turkey, Europe, Far East and America which are equipped with RF terminals in order to provide service in electronic base. Latek Logistics is also a member of International Federation of Freight Forwarders Associations (FIATA), IATA and Association of International Forwarding and Logistics Service Providers (UTIKAD). (<http://www.lateklogistics.com/kurumsal.asp?no=1>, 20.07.2014).

3.2.1.4. Ran Logistics

Ran Logistics was founded in 1990 in Turkey for providing international land transportation, heavy transportation and special project transportation, international air and sea transportations and warehousing/bonded warehousing services.

Ran Logistics opened its 25.2% shares to the public to be traded in Istanbul Stock Exchange (ISE, as of 2013 it is called BIST) in October 2009 at a price of 40,7 million Turkish Liras (TL) market value, and shares of Ramiz Benli who was the founder and the major shareholder of the company decreased to 62,09%. This was widely accepted by investors as the return of confidence in Turkish capital markets after a difficult period in global crisis.

Due to the intense price competition, and volatile oil prices, Ran Logistics cannot generate profits from the logistics activities especially transportation services any longer. Therefore Ran Logistics had to suspend the international transportation services account for 80% of its profits in September 2012. The main abnormality is disclosure of this decision was announced after share sale of chairman Ramiz Benli whose shares was 62,09% before the sale, and 1,45% after the sale to the public. To sum up, all losses were charged to the public. This is a perfect asymmetric information problem needs to be covered as case study.

After this announcement, firm value sharply decreased account for approximately 90% from the beginning of going public. As of March 2013, market value of the company is 4.400.000 TL (Finnet 2000, Access date: 27.05.2014), and due to this asymmetrical information issue, Ran Logistics is traded in BIST watchlist companies market instead of BIST 100 equity market (http://www.radikal.com.tr/ekonomi/ran_lojistikte_neler_oldu_kucuge_vuran_vurana-1099770, 27.05.2014).

3.2.2. Companies operating in Aviation Industry

3.2.2.1. Turkish Airlines

The "State Airlines Administration" operating under the supervision of the Ministry of National Defense has been established in 1933. The organization employed a total of 24 personnel comprised of seven pilots, eight mechanics, eight officers and a radio operator.

In 1956, Turkish Airlines joined to the IATA an industry oversight body established by the world's airlines in order to facilitate commercial, technical, managerial and economic cooperation and to prevent unfair competition among its members. BOAC (British Overseas Airways Corporation) became a partner of Turkish Airlines with 6.5% equity share after Turkish Airlines was opened to foreign capital investments. The Wild Goose emblem became the airline's logo in 1961. Year by year, Turkish Airlines (THY) raised its capital and new offices and routes launched with an increasing number of brand-new aircrafts. In 1974, the Cyprus Turkish Airlines has been established with the 50% partnership of Turkish Airlines. THY which had been opened for foreign capital investments in 1957 has again been nationalized in 1977 and the share of the BOAC company was bought by the Ministry of Finance. The Sun Express Airlines has been established with the equal partnership of Turkish Airlines and Lufthansa Airlines in 1989. Within the scope of the company's privatization plan, 1.53% of the airline was offered to the public and the airline was linked to the State Partnership Administration in 1990. The airline attained the status of being a state owned enterprise; under the supervision of the

Republic of Turkey Prime Ministry Directorate of the Privatization Administration in 1994. According to the yearly report published by the Association of European Airlines in December, THY ranked number two among AEA airlines in terms of punctuality and had the second lowest number of mishandled bags and the number of passengers carried exceeded 12 million in 2004. An 'Aviation Safety Assessment' conducted in Turkey by the World Aviation Authority JAA MAST, found that THY is “operating under the highest performance with regards to technical maintenance and repair” in 2005. Turkish Airlines announced that it would significantly upgrade its inflight catering through a joint venture with Austria’s Do&Co A.S., leading to new and innovative in-flight offerings in 2006. Turkish Airlines was granted the “National Quality Award” in aviation in 2007. Turkish Airlines established Anadolu Jet on the 23rd of April, making the connection between Anatolia and Ankara easier and more economical in 2008. Skytrax, a traveler website based in the UK, rated Turkish Airlines Europe’s best for 2010. THY is one of the leader airlines operated throughout the world by increasing fleet capacity and using best business practices (<http://www.turkishairlines.com/en-int/corporate/history>, 19.07.2014).

3.2.2.2. Pegasus Airlines

Pegasus Airlines is a leading low-cost airline in Turkey, which provides reasonably-priced transportation opportunities on point-to-point basis in short, and medium range flight lines and aims to set up a wide flight network with high flight frequency for guests.

Pegasus Airlines, which was founded as a joint venture company on 1990 by Aer Lingus Group, Silkar Investment and Construction Joint Venture, and Net Holding A.S., entered into commercial operation with two airplanes.

After being acquired on 2005 by Esas Holding A.S. owned by Sevket Sabanci and his family, Pegasus started scheduled domestic flights in November of the same year and became the 4th top among the scheduled airlines operating in Turkey.

According to the final structure of partnership after the Initial Public Offering; 34.5% of shares are floating in BIST and 65.5% belongs to Esas Holding A.S, whereas the rest is owned by Sevket Sabanci and his family.

With its fleet composed of 45 airplanes in total, where 44 of them are new generation 737-800 NG and overall age average is 4.1 by September 2013; Pegasus delivered its guests with an average punctual departure rate of 90.29% for the first nine months of 2013.

Pegasus extended its flight network, which was initially composed of 6 domestic locations at the beginning of scheduled flights, up to 76 locations and currently has 45 abroad and 31 domestic flight locations in 30 countries.

In order to provide a pleasant travel experience to the guests; Pegasus continues to offer substantial new services and products. In last few years, the company also put additional income providing services into operation to support the low cost carrier model. By also expanding its family parallel to its growth in the sector; Pegasus turned into a huge family of 2045 members in 7 years from a team of 700 staff. While providing economic, safe and punctual travel opportunities to its guests by means of investments in flight safety and technology areas; Pegasus established the latest flight training center of Turkey and also became one of the leading airlines, which adopted fleet-wide Wireless Ground Link End to End Network Solutions system providing double direction data transfer that is significantly important in terms of traceability of systems.

Consistently growing Pegasus, has been granted the title of “Fastest Growing Airline in Europe” both in 2011 and 2012 among 25 biggest airline companies among Europe; according to ranking based on seat capacity data given in Official Airline Guide (OAG) report.

During recent years, where the Turkish civil aviation sector entered into a serious growth trend, Pegasus has proven to be satisfying a significant demand in aviation sector with the number of its guests increasing much more than average growth in the sector (<http://www.pegasusyatirimciiliskileri.com/en/about/history-of-pegasus.aspx>, 19.07.2014).

3.2.2.3. TAV Airports

TAV Airports is an airport operator, which is one of the world’s most challenging sectors, not only in Turkey but also many airports in the world. TAV’s

history started in 1997 along with the tender for Istanbul Ataturk Airport International Terminal. TAV Airports Holding was established as a joint venture between Tepe and Akfen groups who won the tender. Having turned into a success story in its sector in a very short period of time, TAV has soon become a global brand name thanks to its know-how, highly skilled human resources and advanced technology in airport construction projects as well as the brand new field of airport operations. Having gone through a restructuring process in 2006 in line with its goals, TAV re-organized its “operation” and “construction” activities under TAV Airports Holding and TAV Construction. Following this re-structuring process, TAV Airports Holding was offered to public in February 2007. In May 2012, 38% of TAV Airports’ shares were sold to Aéroports de Paris Group.

Today, TAV Airports, Turkey’s leading brand in the global airport operation sector, operates Istanbul Ataturk, Ankara Esenboga, Izmir Adnan Menderes and Antalya Gazipasa airports in Turkey. Tbilisi and Batumi airports in Georgia, Monastir and Enfidha-Hammamet airports in Tunisia, Skopje and Ohrid airports in Macedonia, Madinah Airport in Saudi Arabia and Zagreb Airport in Croatia are also operated by TAV Airports. TAV Airports has also got the operating rights of Milas-Bodrum Airport. TAV Airports also operates in other areas of airport operations including duty free, food and beverage, ground handling, IT, security and operation services. Within this scope, TAV Airports operates duty-free, food and beverage and other commercial areas at Riga Airport in Latvia. Together with its subsidiaries, the company provided service to approximately 650,000 aircrafts and 84 million passengers in 2013 (<http://www.tavhavalimanlari.com.tr/en-EN/Pages/History.aspx>, 19.07.2014).

3.2.2.4. Çelebi Ground Handling Inc.

Çelebi Ground Handling Inc. was originally founded on 1 February 1958 at Ankara Esenboğa Airport by Ali Cavit Çelebioğlu as the first privately-owned ground handling services company in the Turkish aviation industry.

The traditions and the knowledge and experience that it has built up ever since, the importance that it gives to investing in new technology and in people, and

its ability to be both flexible and quick in whatever it does have made Çelebi Ground Handling the leader of its sector in Turkey and one of the premier ground handling services companies in Europe. ÇGH is at the service of more than 250 customers, the majority of which are international airlines flying in and out of Turkey.

The services that Çelebi Ground Handling provides within the framework of the Ground Handling Services Regulations consist of passenger traffic, load control and communication, ramp, cargo and mail, and aircraft security services, executive aviation services, and warehouse and terminal operations.

Employing equipment with the most advanced technology available and more than 3,500 expert personnel, the company provides all its ground handling services at international standards of quality and in keeping with the principle of absolute customer satisfaction.

The 24 airports at which Çelebi Ground Handling is active in Turkey account for 93% of all of the country's air traffic. The number of new stations continues to increase year after year in line with customers' requests.

At the international level, Çelebi Ground Handling is a member of the International Air Transport Association's International Ground Handling Council (IATA/IGHC), the Airport Services Association (ASA), and the International Air Cargo Association (TIACA) and it is also a founding member of AVIANCE. In its home market, it is a member of the Turkish Private Aviation Enterprises Association (TÖSHİD).

Çelebi Ground Handling made its initial public offering in 1996 and its shares are traded on the İstanbul Stock Exchange under the symbol CLEBI (<http://www.celebihandling.com/index.php?pg=kurumsal&lng=eng>, 19.07.2014).

3.2.2.5. Uçak Servisi A.Ş. (USAŞ)

USAŞ have been privatized in 1989 by selling its 70% stock to SAS Service Partner as a public institution, which serves to Turkish Airlines and other global airlines. Company stocks have been traded in the Borsa İstanbul Stock Exchange since 1993. The major activity of the company is catering services for the global airlines, and running restaurants, cafes, sales stores and related facilities at the

airports, terminals and other locations related with airway transportation. Since 2012, the company is operated under the supervision of Işıklar Holdings. Then, the corporate structure of the company was re-established as holding to reach efficiency, profitability, and sustainability. Affiliates of the holding consists of Çemaş Casting Inc., Ege Kraft Inc., Niğbaş Niğde Concrete Inc. Özişik Construction and Energy Inc., SIF Heavy Construction Inc., HMF Machine and Service (<http://www.usas.com.tr/hakk%C4%B1m%C4%B1zda.html>, 1.06.2014).

3.2.3. Others

3.2.3.1. DOCO Aktiengesellschaft

DO & CO Aktiengesellschaft is an Austrian catering company, headquartered in Vienna. It is active in many catering segment, such as airline catering, train catering and international events catering. The company is also involved in providing services through its restaurants, bars, lounges, and hotels

DO & CO has built up a customer portfolio consisting of more than 60 airlines. This clientele includes major players such as the Austrian Airlines Group, NIKI, Turkish Airlines, British Airways, Singapore Airlines, Oman Air, Cathay Pacific, Emirates Airline, Etihad Airways, Qatar Airways, Royal Air Maroc, Egypt Air, Malaysia Airlines, EVA Air, China Southern Airlines, Royal Jordanian, China Airlines, Hainan Airlines and Asiana Airlines.

In its 2013/2014 business year, the DO & CO Group recorded sales of € 636.14m, an increase of 10.4% or € 59.95m over the previous year. Sales at the Airline Catering division rose by € 49.96m in the business year of 2013/2014, from € 400.23m to € 450.19m in spite of a difficult market. The division contributes 70.8% to Group sales.

The International Event Catering division saw its sales fall from € 71.09m, by € 10.30m, to € 60.79m. The division's share in overall sales was 9.6%. The decline was due solely to the fact that DO & CO had handled the catering for the UEFA EURO 2012 football championship in Poland and Ukraine in the 2012/2013 business year. Adjusted for the once-only effect of UEFA EURO 2012, the division reported a

highly satisfactory increase of 20.4%. As to its Major Events, a highlight of the division is its catering to Formula 1 races with all 16 races in 16 countries, ATP Tennis Masters in Madrid, the UEFA Champions League final in London's Wembley Stadium, and the UEFA Super Cup final in Prague, and related major organizations. (http://en.wikipedia.org/wiki/Do_%26_Co, 10.07.2014).

3.2.3.2. Beyaz Fleet Renting

Beyaz Fleet Renting started its activities in Didim – Altinkum in 1993 with 3 automobiles, 10 motorcycles and 10 bicycles, under Beyaz Turizm ve Yatçılık Ltd. Şti. title.

Beyaz Fleet Renting, carrying out its activities with a vehicle fleet, consisting of approximately 7000 vehicles, and expert staff, consisting of over 100 personnel, provides service for a widespread customer network with its General Directorate in Ankara and a branch in Istanbul.

The aim of Beyaz Fleet Renting, which became more powerful as a result of the partnership with İş Girişim Sermayesi, a group company of Türkiye İş Bankası, in 2006, is to become one of the most profitable companies of the sector with a corporate company identity in world standards by maximizing the company value. It has been continuing its way with the same principles but separately from İş Girişim Sermayesi since 2008.

Beyaz Fleet Renting, renting 90% of its parking lot to corporate companies as fleet, continues to provide rapid solutions for its customers with the ever-increasing number of vehicles. (<http://www.beyazfilo.com/About-us.aspx>, 01.06.2014).

3.3. METHODOLOGY

3.3.1. Regression and Panel Data Regression Analysis

3.3.1.1. Regression Analysis

Regression is a statistical tool to determine the linear relationship between two or more variables, and is primarily used for prediction and causal effect of one variable upon another. For instance, should a researcher explore what the effect of a price increase upon demand, or the effect of changes in the money supply upon the inflation rate, data on price and demand, or money supply and inflation rate are gathered and used to run a regression equation (Sykes, 1992: 1).

Variables are divided into two categories as dependent, and independent variables. Simple regression consists of a sole explanatory variable as demonstrated in the formula below (Greene; 2003:7);

$$Y = \alpha + X\beta + \varepsilon$$

Where Y is dependent, explained or endogenous, and X is independent, explanatory or exogenous variables, α is a constant term, and β “coefficient” of the variable X , and ε is a random disturbance. For instance, if how much extra income do people receive if they have had one more year of education all other things equal is explored, the formula above can be read as following;

α = a constant amount, what one earns with zero education

β = the effect in dollars of an additional year of schooling on income, hypothesized to be positive, and

ε = the “noise” term reflecting other factors that influence earnings.

Reasons for developing the equation demonstrated above can be categorized as follows (Dielman, 2001: 2):

1. To describe the relationship
2. For control purposes (to determine what value of independent variable is required to generate a certain level of dependent variable)
3. For prediction

3.3.1.2. Panel Data Regression Analysis

A longitudinal, or panel, data set is one that follows a given sample of individuals over time, and thus provides multiple observations on each individual in the sample. (Hsiao, 2003: 2). It refers to the pooling of observations on a cross-section of countries, firms etc. over several time periods (Baltagi, 2001: 1). Many data sets are generally measured across two dimensions, which are time and cross-section dimension. For instance, we may have 25 annual observations on 10 countries, or 50 quarterly observations on 20 states, or 75 annual observations on 2000 individuals. Data of this type are referred to as panel data, which allows to control for variables that cannot be observed or measured such as cultural factors or difference in business practices across companies, or variables that change over time but not across entities that accounts for individual heterogeneity (Davidson and MacKinnon, 1999: 296, Torres-Reyna, 2010).

To distinguish the pooled cross sections and panel data pooled cross sections set is obtained by sampling randomly from a large population at different time points. On the other side, a set of panel data follows the same individuals over time. For instance:

Time	Pooled	Panel
t=1	Kerim, Fevzi, Resul,	Türkan, Deniz, Gökhan
t=2	Seçil, Ali, Selçuk	Türkan, Deniz, Gökhan

Source: Shin, 2012, http://www.youtube.com/watch?v=wHMrsBX-oV0&index=2&list=FLj4V2ZR1Q_yYEg_wBYVNDhA, 28.03.2014

In literature of econometrics, the analysis of panel or longitudinal data is one of the most active and innovative tool with regards to the development of estimation techniques and theoretical results (Greene, 2003: 284).

There are some globally well-known panel data researches conducted in the USA, that illustrate the nature, poverty etc. and estimate the conditions of economics and social environment accordingly of the entities examined such as institutions, countries. The examples of these surveys are as follows (Shin, 2012):

- Labor Market Activity Survey (LMAS), USA

- Panel Study of Income Dynamics (PSID), USA
- National Longitudinal Survey of Youth (NLSY), USA

There are several benefits of using panel data that as listed by Hsiao (1985) and Klevmarken (1989). This has been as follows:

- Individual heterogeneity is controlled
- More informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency are provided
- Dynamics of adjustment are better
- Identifying and measuring the effects that are simply not detectable in pure cross-section or pure time-series data are better
- Constructing and testing more complicated behavioral models than purely cross-section or time-series data are allowed
- Usually micro units such as individuals, firms and households are gathered.

Panel data regression differs from regular time series or cross-section regression, and consists of double subscript on its variables indicated in the general linear model below (Baltagi, 2001: 11-12):

$$y_{it} = \alpha_i + X'_{it}\beta + \varepsilon_{it} \quad i = 1, \dots, N; \quad t = 1, \dots, T$$

,where i is entity such as households, individuals, firms, countries etc. as a cross-section dimension, and t is time as time-series dimension. y_{it} is the dependent, whereas X'_{it} is independent variables. α_i is the unknown intercept for each entity (n entity-specific intercepts), β is the coefficient for independent variable, and X'_{it} is the i^{th} observation on K independent variables.

Regressors can be classified as (Katchova, 2013):

- Varying regressors x_{it} , which can be implied as annual income for a person, or annual consumption of a product etc.
- Time-invariant regressors x_{it} is used as $x_{it} = x_i$ for all t , which can be implied as gender, race, education etc.
- Individual-invariant regressors x_{it} is used as $x_{it} = x_t$ for all i , which can be implied as unemployment rate, or inflation etc.

There are three types of models on panel data regression, which can be referred as pooled Ordinary Least Square (OLS), fixed effects, and random effects (Greene, 2003: 285).

Pooled model specifies constant coefficients, which is the usual assumptions for cross-sectional analysis. It has many restrictions compared with other panel data models and is not often used in the literature. The general formula for pooled model demonstrated below:

$$y_{it} = \alpha + x'_{it}\beta + \varepsilon_{it}$$

If one assumes that there is unobserved heterogeneity across individuals captured by α_i , for instance unobserved ability of an individual that effects wages, individual-specific effects models need to be used. The main concern on these models is whether the individual-specific effects α_i are correlated with the regressors or not. If they are correlated, fixed effects model is applicable. If they are not, random effects model is applicable.

Fixed effects model allows α_i , which is individual-specific effect, to be correlated with the regressors x , and α_i is included as intercepts. Each individual has a different intercept term and the same slope parameters. Thus, the formula is as follows:

$$y_{it} = \alpha_i + X'_{it}\beta + \varepsilon_{it}$$

Individual-specific effects after estimation can be recovered as

$$\hat{\alpha}_i = \bar{y}_i - \bar{x}_i'\hat{\beta}$$

In other words, the individual specific effects are the leftover variation in the dependent variable that cannot be explained by the regressors. Additionally, time dummies can be included in the regressors x (Katchova, 2013).

On the other side, random effects model assumes that the individual-specific effects α_i are distributed independently of the regressors. This leads to the random effects model, where the individual effects α_i are treated as random. The error term in this model consists of two components: a time-invariant component α_i and a remainder component ε_{it} that is uncorrelated over time. The random effect model can be written as:

$$y_{it} = \mu + X'_{it}\beta + \alpha_i + \varepsilon_{it}, \quad \varepsilon_{it} \sim IID(0, \sigma_\varepsilon^2); \quad \alpha_i \sim IID(0, \sigma_\alpha^2)$$

,where $\alpha_i + \varepsilon_{it}$ is treated as an error term consisting of two components: an individual specific component, which does not vary over time, and a remainder component, which is assumed to be uncorrelated over time. That is, all correlation of the error terms over time is attributed to the individual effects α_i . It is assumed that α_i and ε_{it} are mutually independent and independent of x_{js} (for all j and s). This implies that the OLS estimator for μ and β from the random effect model is unbiased and consistent (Verbeek, 2004, 342-343).

The differences of fixed effects model and random effects model are summarized as follows:

Table 13: Differences of Fixed Effects Model and Random Effects Model

Fixed Effects Model	Random Effects Model
<ul style="list-style-type: none"> • The impact of variables that vary over time is analyzed, • The relationship between predictor and outcome variables within an entity (country, person, company, etc.) is investigated, • Each entity has its own individual characteristics that may or may not influence the predictor variables. • The predictor's net effect can be assessed, • Time-invariant features are unique to the individual and should not be correlated with other individual features. Otherwise, FE is not valid. 	<ul style="list-style-type: none"> • The variation across entities is assumed to be random and uncorrelated with the predictor or independent variables included in the model • It is used if differences across entities have some impacts on dependent variable, • Time invariant variables such as gender can be included in this model • The entity's error term is not correlated with the predictors, which allows for time-invariant variables to play a role as explanatory variables.

Source: Torres-Reyna, 2010, <http://www.princeton.edu/~otorres/Panel101.pdf>. 20.04.2014

3.4. HYPOTHESES DEVELOPMENT AND RESEARCH MODEL

3.4.1. Hypotheses Development Based on the Literature Review on Determinants of Capital Structure

3.4.1.1. Tangibility

Capital structure choice of a firm is affected by its asset structure as indicated by many capital structure theories (Titman and Wessels, 1988: 3). From the perspective of pecking order theory; firms having few tangible assets are more sensitive to informational asymmetries, and thus tend to use debt instead of equity should external financing is needed as indicated by Harris and Raviv (1991). Accordingly, there is a negative relationship between intangible assets and leverage. However, from trade-off theory perspective; as tangible assets is considered as collateral, firms can easily obtain debt, because this tangible assets provide security to the creditors against bankruptcy, leading to a positive relationship between tangible assets and leverage.

Chen (2004) used data from the annual report of 88 Chinese public-listed companies for the period 1995–2000. The data set is called the Dow–China 88 Index, which is based on the entire Chinese stock market structure created by the Dow–Jones in May 1996. According to this study, there is a positive relationship between a firm’s leverage, particular long-term debt, and the tangibility of its assets. It showed that asset tangibility is an important criterion in banks’ credit policy, and this is particularly true for long-term loans. It is claimed in this study that this result is consistent with both the trade-off model in terms of financial distress and bankruptcy costs and the Pecking order hypothesis in terms of asset mispricing.

Frank and Goyal (2009) studied publicly traded American firms over the period 1950 to 2003 to determine which factors have a reliable relation to market-based leverage. They presented a set of six factors providing a solid basic account of the patters in the data examined, and they indicated that firms that have more tangible assets, as one of these factors, tend to have more leverage, and thus they concluded that is a positive relationship between leverage and tangibility.

Long and Malitz (1985) tested their hypothesis that a firm's choice of capital depends on the type of investment opportunities it faces by examining the cross-sectional behavior of firms during the period 1978-80. All manufacturing firms, which contained a full set of data for 1978-80 from COMPUSTAT database, data from Center for research in Security Prices (CRSP) Daily Return Tape, and 545 firms of which 139 are in the Standard and Poor 500, 216 are non-Standard and Poor 500 New York Stock Exchange (NYSE) firms, and 190 are listed on the American Stock Exchange (AMEX) were considered as sample set for this study. They found that if a firm's investment opportunities consist primarily of tangible assets, such as capital equipment, they could always support a greater level of debt, which lead us a positive relationship between leverage and tangibility.

Rajan and Zingales (1995) investigated the determinants of capital structure choice by analyzing the financing decisions of public firms covering 1987-1991 period, using "Global Vantage Database" and in the Group of Seven (G7) countries which are Canada, France, Germany, Italy, Japan, United Kingdom and United States. They observed tangibility, market-to-book, size, and profitability of the listed companies in the countries concerned. One of their conclusion is that tangibility is positively correlated with leverage.

Drobetz and Fix (2003) tested leverage predictions of the trade-off and pecking order models using Swiss data. Therefore they examined 124 non-financial Swiss firms. They found the tangibility coefficient is significant approximately half of whole regressions. Therefore they concluded that tangibility is positively correlated with leverage.

Michaelas et al. (1999) empirically investigated the implications of the theory of capital structure in the small business sector in United Kingdom (UK) by using Lotus One-Source Database that contains 3500 firms for the period of 1986-1995. They provided evidence on the magnitude, direction and significance of the regression coefficients of the different capital structure determinants, across time and industries. According to this study asset structure (tangibility), as one of the determinants examined, is positively correlated with debt.

In the view of above literature, and considering that transportation industry is capital intensive, the following hypothesis is developed for this study

H₁ = There is a positive relationship between tangibility and leverage

3.4.1.2. Size

There are contradicting empirical results regarding the effect of size on capital structure decisions. From trade-off perspective, larger firms have lower probability of default as a result of being better able to diversify as indicated by Heshmati (2001), and additionally as indicated by Chittenden et al. (1996), larger firms use more leverage due to the smaller costs of monitoring the firm and the reduced moral hazard and adverse selection, that leading to the positive relationship between size and leverage. On the other side, as argued by Rajan and Zingales (1995), the more the firm is larger, the more level of transparency increases, and thus information asymmetry gap between insiders and outsiders shrinks, and therefore the probability of undervaluation of issuing new equity decreases. As also pointed out by Booth et al. (2001), size is associated with survival and the agency costs of both debt and equity. As a consequence larger firms have easier access to equity markets due to low fixed costs, and thus are eager to use equity financing for the capital raising. Form this perspective; one can mention that there is negative relationship between size and leverage.

Hall et al. (2004) examined the differences of the capital structure of European Small Business Enterprises (SMEs) whether are due to country-specific factors or between countries in firm-specific factors by investigating 4,000 firms from eight European countries, which are Belgium, Germany, Spain, Ireland, Italy, Netherlands, Portugal, and United Kingdom for the year of 1995 as same year have also been covered by Jordan et al. (1998), Ozkan (2001), and Watson and Wilson (2002). Their hypothesis was based on the significance of some the capital structure determinants as profitability, growth, asset structure, size and age. Due to the fixed transaction costs of securing long-term debt, they asserted that smaller firms face more problems for raising long-term debt and thus long-term debt is positively

related to firm size. Should long-term debt do not exist; smaller firms will use short-term debt, which leading to be negatively related to size.

Booth et al. (2001) assessed whether capital structure theory is portable across countries with different institutional structures. Therefore, they analyzed capital structure choices of firms in 10 developing countries, which are India, Pakistan, Thailand, Malaysia, Turkey, Zimbabwe, Mexico, Brazil, Jordan, and Korea for the period of 1980-1991, but sample period of each country varied within this period, and figures were compared with Rajan and Zingales (1995)'s G7 countries sample. They presented evidences capital structure decisions are affected by the same variables as in developed countries. But, there are also country-specific factors, and different institutional features, which individually affects these decisions across countries. One of their findings suggests that leverage is positively correlated with firm size as also indicated by Rajan and Zingales (1995).

Wald (1999) conducted a cross-country comparison of empirical data for the year of 1993 for five countries, which are France, Germany, Japan, United States, and United Kingdom to test alternative capital structure theories in an international. One of the findings of this study is size coefficient for the United States (1,513) is significant and positive. But, as same as Rajan and Zingales (1995), Wald (1999) also found that larger firms such as Siemens, Daimler-Benz in Germany tend to have less debt as a result of some country-specific factors.

Heshmati (2001) formulated dynamic adjustment model on optimal leverage for Swedish micro and small firms in a firm and time specific basis, due to the constraints of observed leverage and set of independent variables covered by previous empirical studies. Data gathered from Market Manager Database, which covers all Swedish firms whose annual revenue exceeds SEK 10,000. Time period was selected as 1993/4 to 1997/8. They found that the size variable is negative and weakly significant in the dynamic model, but it is insignificant in the static model. This is a meaning that Swedish micro firms and SMEs use debt financing for their initial growth but subsequently they use their profits to reduce their level of leverage. On the other side, author suggested that positive size effect is also consistent with the theoretical basis, which bankruptcy costs, being fixed, equal small portion of firm

value for the larger firms, and additionally, larger firms are better able to borrow more.

Arvanitis et al. (2012) found that size appears statistically significant in the all models and FGLS estimator, and is negatively related to the leverage ratio that supports the pecking order theory for European shipping firms. Specifically, larger firms encounter less information asymmetry problems by selecting the issuance of shares as the best way to finance capital. For the shipping industry, larger firms that are globally operated disclose their financial information to the public in detail, which reduces the cost of capital and encourages the firms to use equity capital. This is supported in the shipping sector because we are faced with large companies that operate globally by their nature and continuously disclose their financial information, while the most of them are controlled by external and internal auditors. We should also not forget that the period of economic crisis has created a bleak and volatile economic environment, leading financial institutions, firstly on banking solvency crisis making borrowing difficult enough. Although, the sample period comprises the crash of 2008 and the ongoing crisis, which we should take in to account, the negative relationship between size and leverage ratio

In the view of above literature, there are contradicting empirical results on how size affect capital structure, and from the nature of the sector of being analyzed in this study, it is hard to expect a sole view as dynamic and static factors exist from each side. Thus following hypotheses are developed for this study.

H₂ = Firm size significantly affects capital structure decisions

3.4.1.3. Profitability

According to Myers (1984), firms prefer raising capital first from retained earnings, and then debt and equity as a last resort due to the costs of issuing new equity. Additionally, this behavior can be due to the asymmetric information presented by Myers and Majluf (1984) as well that is the consequence of pecking order theory. For all cases, should the firm's earning is sufficient for raising capital to sustain their business activities and also to make new investment projects; neither debt nor equity will be applied unless it is necessary by this kind of profitable firms.

Thus, in terms of pecking order theory there is a negative relationship between profitability and leverage. But, from the trade-off perspective, more profitable firms are eager to increase their debt capacity to take advantage of tax shield. Thus firms lower their costs of financial distress as long as they are profitable (Frank and Goyal, 2009: 7), leading to the conclusion that there is a positive relationship between profitability and leverage.

Baker (1973) investigated the effect of use of debt capital on US industry profitability using Sherman and Tollison database, and suggested that industrial firms with more predictable output and thus lower profit risk use relatively more debt and have lower values of equity/assets, which leading to the negative relationship between profitability and leverage.

Friend and Lang (1988) also studied to determine the impact of managerial self-interest on capital structure decisions for 984 NYSE firms by dividing them into closely held and publicly held firms as non-managerial principal investors and non-managerial principal stockholders respectively, for the period of 1979-1983. One of findings in both studies is that profitability is negatively correlated with leverage.

Drobetz et al. (2013)'s descriptive statistics assert that shipping companies are similar to other industrial firms in terms of profitability. The median shipping company presents a ratio of EBIT to total assets of 10.4%, which is a little higher than the median ratio of 9.71% in the sample of firms from the G7 countries, and subsequently they point out that profitability is one of the main drivers of firm leverage in the shipping industry, and they found that profitability is inversely correlated with leverage as indicated by pecking order theory for the shipping industry.

Arvanitis et al. (2012) found that profitability is negatively related to the leverage that supports pecking order theory and it is statistically significant in the FGLS (Feasible Generalized Least Squares) estimator and the Generalized Method of Moments (GMM) system model for the European shipping firms. Their results suggests that profitable firms use their retain earnings to cover their capital needs rather than external borrowing.

On the other side, De Angulo and Masulis (1980) generalized Miller's (1977) differential personal tax model in terms of US tax code, and they formulated a model

of corporate leverage choice where corporate and personal taxes exist to determine the effect of tax shield on capital structure decisions for the US firms in a given period of 1964-1973. They determined that book value of debt ratios is positively correlated with return on assets before interest and taxes. Their study extended by Dammon and Senbet (1988) in which the effect of corporate and personal taxes on the firm's optimal financing decisions under uncertainty. They concluded that firms having higher expected earnings related with investments don't need to have lower debt if they utilize different production technologies and have less than perfectly correlated pre-tax output, leading to positive relationship between profitability and leverage.

Given the literature discussed above, many empirical studies have been conducted to determine what the significant effect of profitability on capital structure decisions is. However, disputes exist in terms of the evidences of the studies concerned as a result of either unobserved dynamics or nature of the businesses that the firms undertake. From this perspective; as logistics and transportation companies are commonly not publicly traded, and generally run by families, it is expected that the effect of profitability on capital structure decisions in terms of pecking order view as supported by Drobetz et al. (2013) and Arvanitis et al. (2012). Therefore, below hypothesis is developed for this study.

H₃ = There is a negative relationship between profitability and leverage

3.4.1.4. Liquidity

The effect of liquidity of the firms on their capital structure decisions is contradicting as well. From one side, should the firm's level of liquidity is higher; this may encourage the firm to increase the leverage ratio to cover its short-term debt which is due, leading to the positive relationship between liquidity and leverage. From other side, as indicated by Amihud and Mendelson (1986), enhanced liquidity lowers cost of equity, and therefore debt usage gets lower relatively. In other words, should the firm holds liquid assets, they are used for funding their investment projects or other capital needs in the first place, which leading us to the negative relationship.

Ozkan (2001) investigated the determinants of target capital structure of firms and the role of adjustment process by using a panel data set for 390 UK companies. According to the findings, liquidity of firms negatively impacts their leverage ratio. Author interpreted that this result may be because of the potential debates between debt holders and shareholders. Because, liquidity of firms' assets can be regarded as evidence to show the extent to which these assets can be manipulated by shareholders at the expense of bondholders.

Lipson and Mortal (2009) examined the relation between equity market liquidity and capital structure. They have reached the same findings of Amihud and Mendelson (1986) which is more liquid firms prefer equity in their capital structures as cost of equity is relatively lower than cost of debt.

Williamson (1988) reviewed corporate finance through transaction-cost approach by indicating the importance of corporate governance practices. Author suggested that as long as assets that a firm holds are more liquid, capital needs of the firm should be financed by using bank debts or public debt markets as the cost of capital gets lower due to the redeployment of these assets. As a result, costs of liquid assets are less to monitor and liquidate for bondholders of the firms and thus firm's debt capacity increase. Williamson (1988)'s view has been supported by Shleifer and Vishny (1992). They asserted that expected costs of financial distress are affected by liquidity of the asset that the firm holds. Because the less the asset is liquid the higher selling discounts occur compared with their fair values. Thus, to reduce the probability of bankruptcy managers shrink decrease debt usage. In contrast, the more firm hold liquid assets, the less expected costs of financial distress show up. Both studies lead us to the positive relationship between liquidity and leverage.

Morellec (2001) investigated how asset liquidity affects the values of corporate securities and the firm's financing decisions by explaining the impact of asset liquidity and security provisions on leverage ratios and credit spreads. According to the author, debt capacity is increased by liquidity only when the disposition of assets is restricted by bond covenants. On the contrary, with unsecured debt, credit spreads on firm leverage are increased by higher liquidity, and thus reduces optimal leverage.

Frieder and Martell (2006) explored the relationship between liquidity and leverage in detail. They took quoted and effective spreads as a proxy of liquidity, and focus on effective spreads at which transactions actually occur. Though these recorded measures of spreads limit their sample period to 1988-1998, allows measuring the direct costs of trading. They found that as leverage increases, equity bid-ask spreads decrease. Also, their empirical results revealed that as liquidity decreases, leverage increases, which is consistent with the notion that managers use debt when cost of equity financing becomes relatively expensive. Their results not only provided valuable information on the complex relationship between capital structure and liquidity, but also revealed on the determinants of leverage and bid-ask spreads.

Sibilkov (2009) tested alternative theories on the effect of asset liquidity on capital structure by examining US public companies for the period of 1982 to 2005 using compustat Industrial Annual P-S-T Research. Sample firms have at least \$20 Million Dollars total assets, and also financial and utility industries were excluded due to regulation effects. The final sample after filtering consisted of 56.727 firm-year observations that span 7.486 individual firms. The findings of this study is consistent with Williamson (1988) and Shleifer and Vishny (1992); that is asset liquidity increases optimal leverage, leading to the positive relationship between liquidity and leverage.

Arvanitis et al. (2012) found that liquidity is statistically significant in the dynamic model GMM, and also it is positively correlated with leverage that verifies the trade off theory for the shipping firms. In other words, firms with higher liquidity can overcome their obligations, and therefore obtaining external capital by using debt from other institutions gets easier for these firms.

In the view of the above literature, following hypotheses are developed for this study.

H₄ = Firm liquidity significantly affects capital structure decisions

3.4.1.5. Growth Opportunities

Long and Malitz (1985), and Toy et al. (1974) suggested that as the firm grows, moral hazard effect that encourages the firm to take more additional risks may occur and the firm may face higher costs of bankruptcy. Thus, based on the trade-off theory, an inverse relationship exists between growth and leverage. On the other side, pecking order theory suggests that once the internally generated funds are not sufficient for the growing firms for their business activities or investments projects, then they apply to debt instruments, which leading to the positive relationship between growth and leverage as indicated by Drobetz and Fix (2003) and Michaelas (1999).

Myers (1977) examined the corporate borrowing behavior. According to this study, firms with higher level of growth might hold more real options for future investment than the firms with low level of growth. However, if the equity needs to be raised by high-growth firm to use such options in the future, this opportunity can be missed due to the unpaid debt. Because, wealth generated by such an investment is handed over to debt holders from stockholders. Due to this reason, firms with high growth opportunity may not use debt financing initially.

Baskin (1989) empirically investigated pecking order theory. The sample used in this study consisted of the 378 firms from the 1960 Fortune 500 obtained from Compustat database in 1984, and the data employed spans the years 1960-1972 by using regression analysis. The evidence of this study supported previous researches, and demonstrated that leverage varies positively with past growth.

Rajan and Zingales (1995) indicated in their study examining firms' capital structure in G7 countries by extending Myers (1977) study that highly levered firms are more likely forgo valuable investment opportunities, and thus firms with higher growth opportunities should use equity financing in the first place to keep up their debt capacity.

Toy et al. (1974) tested financial performance indicators growth, profitability, and risk for the manufacturing firms in Norway, United States, Netherlands, Japan and France. Their sample consisted of 816 firms in total for the general period of 1966-1973, which varied by country within this period. They found that growth rate

in assets is a highly significant debt ratio determinant in the United States and Japan but of marginal significance in Norway and Netherlands.

Kim and Sorensen (1986) empirically tested the link between agency costs and debt policy of corporation. Their sample consisted of corporate data belong to 168 firms by using Compustat Value line, and dividing them into three groups: those with heavy inside ownership, less inside ownership, and average inside ownership. The used multiple regression to test the insider ownership on corporate leverage, and they found that higher inside ownership have higher leverage than firms with lower insider ownership, and also indicated that growth has significant negative coefficient as same as Titman and Wessels (1988).

Kester (1986) also investigated capital and ownership structure by comparing United States and Japanese manufacturing firms. Growth, profitability, risk, size and industry classification were considered as capital structure determinants, and regression analysis were employed 4/1982 through 3/1983 cross-sectional data for 344 Japanese companies and 452 US companies in different 27 industries. Kester (1986) does not find any relationship between growth opportunities and leverage.

In the view of above literature, following hypotheses are developed for this study.

H₅ = Firm growth opportunities significantly affect capital structure decisions

3.4.1.6. Non-Debt Tax Shield

Tax is one of the major attractive topics for the firms on their financing decisions. Based on the trade-off theory, firms try to maximize their leverage to take advantage of higher tax rate, which creates tax shield (Frank and Goyal, 2009: 9). On the other side, tax can be substituted by some investments which do not have any costs related with debt. As mentioned previously, the optimal capital structure model of DeAngelo and Masulis (1980) involves not only corporate taxes and personal taxes, but also non-debt related corporate tax shield such as depreciation expenses, depletion allowances, investment tax credits etc. that serve as a substitute for interest expenses that are deductible in calculation of the corporate tax and thus which lower

firm's capacity of debt tax benefit. Therefore, it is expected that firms with high-level non-debt tax shields reduce their leverage, and as a result one can claim that there is a negative relationship between non-debt tax shield and leverage as also proved by Bowen et al. (1982), and Kim and Sorensen (1986). On the other side, if securability is concerned, a direct relationship is expected as indicated by Bradley et al. (1984), and Wald (1999).

Ozkan (2001) investigated the non-debt tax shield as a determinant of capital structure of the 390 UK firms analyzed in his paper, and expected to have less debt than other firms. By using the ratio of annual depreciation expense to total assets, his prediction is confirmed by the negative and significant coefficient of the current non-debt tax shields ratio. The estimated coefficient for this variable is significant at the 1% level in all specifications.

Heshmati (2001) also examined the effect of non-debt tax shield on capital structure choices by conducting empirical analysis on Swedish micro and small firms. They use the ratio of depreciation to total assets as a proxy for this determinant, and a negative relationship was expected in the model. The results supported the expectations that there is an inverse relationship between Non-Debt Tax Shield and leverage. The coefficients were negative and significant, and it is the second largest coefficient, 0.59, and its size confirms that micro and small firms rather utilize other tax shields that do not involve the issuance of debt. Therefore, these kinds of firms have no incentive to increase leverage for tax shield purposes.

Bradley et al. (1984) developed a model that synthesizes the modern balancing theory of optimal capital structure. Their model is accepted as a stimulating by the financial community. They investigated the cross-sectional behavior of 20-year average firm leverage ratios for 851 firms covering 25 two-digit SIC industries. They incorporated positive personal taxes on equity and on bond income, expected costs of bankruptcy costs and agency costs (namely financial distress), and positive non-debt tax shields. One of their findings was found puzzling that there is a strong direct relation between leverage of the firm and non-debt tax shields, which contradicts with substitutability theory. They explained the reason of the contradiction that non-debt tax shields can be considered as an instrumental

variable for the securability of the assets that the firm holds, and the more the firm has securable assets, the more the firm has higher leverage ratio.

In the view of above literature, following hypothesis is developed for this study.

H₆ = There is a negative relationship between Non-Debt Tax Shield and Leverage

3.4.1.7. Volatility (Business Risk)

Volatility of the earnings, in other words business risk, is one of the major problems for the firms. If the cash flows of the firms are more volatile, these firms encounter higher costs of financial distress. Therefore, they should use less debt. On the other side, some empirical studies such as Bradley et al. (1984), Titman and Wessels (1988), Thies and Klock (1992) could not find any consistent evidence on the relationship between leverage and volatility.

Booth et al. (2001) evaluated the effect of business risk on capital structure decisions for developing countries sample. They calculated volatility by dividing the return on assets to total assets. The average results differ from a low of 3.04 percent for South Korea to a high of 9 percent for Brazil. While the lowest business-risk countries are South Korea and Malaysia, Brazil and Jordan are the highest ones. Business risk proxy is estimated as a single value for all years, and thus it acts like a dummy variable in the time series estimates, and could not be used in the fixed-effects model. Their results suggests that business risk is negatively correlated with leverage for 6 countries; namely Brazil, South Korea, Malaysia, Pakistan, Turkey and Zimbabwe, and positive for 4 countries as Mexico, India, Jordan and Thailand.

Ferri and Jones (1979) examined the financial structure of 233 firms in the United States. Data on the sample firms was gathered for two five-year time spans: from 1969 to 1974 and from 1971 to 197. Multi period variables such as average sales etc. are calculated on the basis of data from each year in the five-year spans. Single period variables such as debt to total assets are computed on the basis of data

from the terminal year in the two time spans. One of their findings is that business risk or earning volatility is inversely correlated with leverage.

Chang et al. (2009) extended Titman and Wessels (1988)'s structure equation model by applying Multiple Indicators and Multiple Causes (MIMIC) model with refined indicators, to a pooled sample for the period 1988–2003. The sample size consisted of 13,887 firm-year observations in 16 years, and the sample covers 351 industries based on SIC code. They used 4 indicators to assess volatility on leverage as Standard deviation of the percentage change in operating income, Coefficient of variation of Return on Assets (ROA), Coefficient of variation of Return on Equity (ROE), Coefficient of variation of Operating income divided by total assets. Their findings on volatility are mixed. Except coefficient variation of ROE, other indicators are significant at %1 level for all models.

In the view of above literature, following hypothesis is developed for this study.

H₇ = Volatility (Business Risk) significantly affects firm's capital structure decisions

3.4.1.8. Corporate Governance

Since the seminal work of Jensen and Meckling (1976) in implementing a theory of the firm based upon conflicts of interest between related parties, which are shareholders, managers and debt holders; a great number of studies have been conducted by many researchers to explain these conflicts and to provide solutions.

Corporate policy choices are suffered by the presence of agency conflicts between insiders, (managers and controlling shareholders) and outsiders (minority shareholders). Since managerial flexibility is limited by debt as indicated by Jensen (1986); self-interested managers do not make capital structure decisions, which maximize shareholder wealth. Therefore, leverage ratio of the firm is affected by not only firm-specific features, but also this agency conflicts (Chang et al., 2014: 5).

Zwiebel (1996) examined the decisions of shareholders when they remove competent managers ex ante in a setting with varying manager types and manager actions by presenting an influential model of dynamic capital structure. Author

explained how a manager of average ability could avoid takeover by issuing debt. According to the model presented in this study, unpaid creditor will fire the manager whose performance is poor, and there is no ex ante entrenchment when the firm is in financial distress all intermediate type managers can initially issue debt strategically. It is indicated that only relatively low ability managers are able to use debt as a commitment to invest solely in efficient investment opportunities.

Berger et al. (1997) studied the relationship between managerial entrenchment and firms' capital structures. Their sample consisted of 2,196 observations for 409 companies in the 1984 to 1991 period, and Compustat database was used to gather financial statement variables. The results of this study generally assert that entrenched CEOs seek to avoid leverage. Unless Chief Executive Officers (CEO) encounter pressure from either ownership and compensation incentives or active monitoring, leverage levels of the firms get lower. Berger et al (1997) found that firms with larger board size have low leverage assuming that to increase firm performance, the more board is larger the higher pressure is generated by board over the managers to lower the leverage ratio. Berger et al. (1997) also examined the board composition, and pointed out that firms with more outside directors have higher leverage, and thus one can assume that there is a positive relationship between the percentage of outside directors and firm leverage.

Harvey et al. (2004) tested whether leverage can lower the effects of agency and information problems by focusing emerging market firms as pyramid ownership structures can generate potentially extreme managerial agency costs. They used 1,014 cross-sectional sample of 1,014 exchange listed non-financial firms in 18 emerging markets with both ultimate ownership data for 1995–1996 from Lins (2003) and monthly stock return data over the previous five years from DataStream by using panel data regression analysis. The countries are Argentina, Brazil, Chile, the Czech Republic, Hong Kong, Indonesia, Israel, Malaysia, Peru, the Philippines, Portugal, Singapore, South Africa, South Korea, Sri Lanka, Taiwan, Thailand, and Turkey. They found that in firms with high expected managerial agency costs that are also most likely to have overinvestment problems resulting from high levels of assets in place or limited future growth opportunities, the incremental benefit of debt is much more concentrated.

Morellec (2004) analyzed the impact of managerial discretion and corporate control mechanisms on leverage and firm value where the managers get benefits from the investments as capital structure decisions can explicitly be affected by the conflicts between empire-building desire of managers and the need to ensure sufficient efficiency to prevent control challenges. Low-level of leverage observed in practice can be explained by manager-shareholder conflicts.

Wen et al (2002) examined the association between corporate governance variables and firms' capital structure in China. They used 180 observations for 60 Chinese listed firms for the period of 1996 and 1998. They presented that there is insignificant relationship between board size, and fixed compensations of CEO and leverage. In contrast, the authors suggested that there is a significant negative relationship between board composition and CEO tenure and leverage. According to their findings, when the percentage of outside directors on the board gets higher, or the CEO tenure is longer, the leverage levels of Chinese listed firms get lower. Additionally, they asserted that as much as the managers of the firms concerned encountered higher corporate governance pressure, they prefer lower level of leverage to avoid risk associated with higher leverage.

Jiraporn and Gleason (2007) investigated how capital structure is affected by the strength of shareholder rights. They used sample includes firms whose corporate governance data were available from the Investor Responsibility Research Center (IRRC), and firms that did not have sufficient financial data on Compustat were excluded. As IRRC collects data only periodically; the governance data were available only for 1993, 1995, 1998, 2000, and 2003, and financial firms were not included. Firms whose Standard Industrial Classification codes fall between 4900 and 4999 are classified as utility firms. The rest of the sample firms represented their industrial (unregulated) sample. There were 4,225 firm-year observations in the industrial sample and 413 observations in the regulated sample. They found that there is an inverse relationship between leverage and shareholder rights, suggesting that as long as shareholder rights are more restricted firms adopt higher leverage that is consistent with agency theory. This negative relationship however was not found for the regulated firms such as utilities, because the regulation ease agency conflicts, and thus, alleviates the role of leverage in controlling agency costs.

Suto (2003) analyzed the corporate finance and governance structure in Malaysia before and after the financial crisis of 1997 by utilizing the agency cost approach. 375 non-financial Kuala Lumpur Stock Exchange listed companies during fiscal years 1995–99 were considered in this study, and the outline was sorted out into three categories; that is features of corporate finance in Malaysia in the 1990s using aggregated time-series data; that is an examination of the determinants of capital structure via cross-sectional regressions in terms of dependency on banks and ethnic ownership structure, controlling ownership concentration, availability of internal funds, corporate size, industry effects, etc.; and that is estimating simple investment functions with panel data to examine the effects of leverage on corporate investments before the crisis. According to the findings of this study, there is a significant negative relationship between top ten shareholdings and leverage, which means that ownership dispersion leads to the high agency cost of equity. Additionally, Malays' shareholdings, including direct holdings of individuals and indirect holdings through institutions, are not significantly related to the leverage, which means that Malay shareholders don't have any significant role in disciplining the corporate management of the firms for the investments. Furthermore, there is generally a negative relationship between foreign ownership and leverage, which means that the more foreign ownership increase the more disciplining on corporate management as well, or it is accepted that foreign ownership is a sign indicating high profitability or high growth of such firms in the market.

Sheikh and Wang (2012) investigated whether capital structure decisions of Pakistani firms are affected by corporate governance attributes such as board size, outside directors, ownership concentration, managerial ownership, director remuneration, and CEO duality. They used non-financial firms listed on the Karachi Stock Exchange, Pakistan, and time-span covered 2004 to 2008 by using multiple regression analysis for the estimation of the relationship between corporate governance measures and capital structure. Their dependent variables consisted of total debt ratio and long-term debt ratio, and they have taken board size, outside directors, ownership concentration, managerial ownership, director remuneration and CEO Duality as independent variables. They also used profitability, size, liquidity, and asset tangibility as control variables. According to the findings of this study, the

total debt ratio and the long-term debt ratio are positively correlated with board size, outside directors, and ownership concentration, whereas director remuneration is negatively related. Additionally, it was found that long-term debt ratio is negatively correlated with managerial ownership. They found CEO duality as highly insignificant in all regressions. On the other side, total debt ratio and long-term debt ratio were negatively correlated with profitability and liquidity, whereas positively correlated with firm size. Furthermore, Asset tangibility is positively related to the long-term debt ratio and negatively related to the total debt ratio. They indicated that corporate governance practices play important role on explaining financial structures of Pakistani firms although they have weak internal and external corporate governance mechanisms compared to firms in developed countries.

In the view of above literature, the following hypothesis is developed for this study.

H₈ = Corporate governance practices significantly affect firms' capital structure decisions

As indicated many times previously, many theoretical and empirical studies have been conducted so far, and determinants of capital structure evaluated varied for each study. Therefore, below table is generated to summarize these determinants.

Table 14: Empirical and Theoretical Studies on Determinants of Capital Structure and Corporate Governance Practices for the Variable Generation of this Study

AUTHOR(S)	LEV	TANG	GROWTH	MTB	ROA	SIZE	LIQ	NDTS	VOL	CEODUAL	CEOWN	BODSIZE	BODOWN	INDEP	FOREIGN	INTOWN	MAJOWN	GDP	INF
Drobetz et al. (2013)	✓	✓		✓	✓	✓												✓	
Toy et al. (1974)	✓				✓	✓			✓										
Ferri and Jones (1979)	✓					✓			✓										
Titman and Wessels (1988)	✓	✓	✓		✓	✓		✓	✓										
Friend and Lang (1988)	✓	✓			✓	✓			✓										
Baskin (1989)	✓		✓		✓														
Mehran (1992)	✓	✓	✓						✓		✓			✓			✓		
Rajan and Zingales (1995)	✓	✓		✓	✓	✓													
Chittenden et al (1996)	✓	✓	✓		✓	✓	✓												
Berger et al. (1997)	✓	✓			✓	✓		✓			✓	✓		✓					
Michaelas et al. (1999)	✓	✓	✓		✓	✓		✓	✓										
Wald (1999)	✓		✓		✓	✓		✓											
Ozkan (2001)	✓		✓		✓	✓	✓	✓											

3.4.2. Research Model

Based on the hypotheses above, following regression models are developed, and variables are generated based on the related empirical studies such as Drobetz et al. (2013), Arvanitis et al. (2012), Rajan and Zingales (1995), Booth et al.(2001), Andreou et al. (2014), Sheikh and Wang (2012);

$$\begin{aligned} (LEV_1)_{it} = & \alpha + \beta_1(TANG)_{it} + \beta_2(ROA)_{it} + \beta_3(ROE)_{it} + \beta_4(SIZE)_{it} + \beta_5(LIQ)_{it} + \beta_6(NDTS)_{it} + \beta_7(RISK)_{it} + \beta_8(MTB)_{it} \\ & + \beta_9(CEODUAL)_{it} + \beta_{10}(CEOWN)_{it} + \beta_{11}(BODSIZE)_{it} + \beta_{12}(INSIDE)_{it} + \beta_{13}(INDEP)_{it} + \beta_{14}(FOREIGN)_{it} \\ & + \beta_{15}(INTOWN)_{it} + \beta_{16}(MAJOR)_{it} + \beta_{17}(GDP)_{it} + \beta_{19}(INF)_{it} + \varepsilon_{it} \end{aligned}$$

$$\begin{aligned} (LEV_2)_{it} = & \alpha + \beta_1(TANG)_{it} + \beta_2(ROA)_{it} + \beta_3(ROE)_{it} + \beta_4(SIZE)_{it} + \beta_5(LIQ)_{it} + \beta_6(NDTS)_{it} + \beta_7(RISK)_{it} + \beta_8(MTB)_{it} \\ & + \beta_9(CEODUAL)_{it} + \beta_{10}(CEOWN)_{it} + \beta_{11}(BODSIZE)_{it} + \beta_{12}(INSIDE)_{it} + \beta_{13}(INDEP)_{it} + \beta_{14}(FOREIGN)_{it} \\ & + \beta_{15}(INTOWN)_{it} + \beta_{16}(MAJOR)_{it} + \beta_{17}(GDP)_{it} + \beta_{19}(INF)_{it} + \varepsilon_{it} \end{aligned}$$

3.4.2.1. Variable Description

Table 15 demonstrates the variables including the authors, who used the same proxies of capital structure determinants as follows.

Table 15: Variable Description

	Variables	Symbol	Definition/Calculation	The Authors who used the same proxies of capital structure determinants
Dependent Variables	Leverage	LEV ₁	Ratio of Long-term debt to total assets	Titman and Wessels (1988), Mehran (1992), Chittenden et al. (1996), Michaelas (1999), Wald (1999), Booth et al. (2001), Hall et al. (2004), Chen (2004), Huang and Song (2006), Delcuore (2007), Frank and Goyal (2009), Chang et al. (2009), Kayo and Kimura (2011), Sheikh and Wang (2012)
		LEV ₂	Ratio of total debt to total assets	Drobetz et al. (2013), Toy et al. (1974), Ferri and Jones (1979), Friend and Lang (1988), Baskin (1989), Berger et al. (1997), Ozkan (2001), Heshmati (2001), Randoy et al. (2003), Suto (2003), Hovakimian et al. (2004), Abor (2007), Sibilkov (2009), Arvanitis et al. (2012), Wen et al. (2002), Andreou et al. (2014)
Independent Variables	Tangibility	TANG	Ratio of fixed assets to total assets	Drobetz et al. (2013), Titman and Wessels (1988), Friend and Lang (1988), Mehran (1992), Rajan and Zingales (1995), Chittenden et al. (1996), Berger et al. (1997), Heshmati (2001), Baker and Wurglar (2002), Drobetz and Fix (2003), Suto (2003), Hall et al. (2004), Hovakimian et al. (2004), Chen (2004), Huang and Song (2006), Delcuore (2007), Kayhan and Titman (2007), Frank and Goyal (2009), Chang et al. (2009), Kayo and Kimura (2011), Arvanitis et al. (2012), Oztekin and Flannery (2012), Wen et al. (2002), Chang et al. (2014)

	Growth Opportunities	MTB	Ratio of market value of assets to book value of assets	Ozkan (2001), Frank and Goyal (2009), Chang et al. (2009), Booth et al. (2001), Drobetz and Fix (2003), Kayo and Kimura (2011)
	Profitability	ROA	Ratio of Earnings before interest and tax to total book assets	Drobetz et al. (2013), Toy et al. (1974), Friend and Lang (1988), Rajan and Zingales (1995), Berger et al. (1997), Michaelas et al. (1999), Wald (1999), Ozkan (2001), Booth et al. (2001), Heshmati (2001), Baker and Wurglar (2002), Randoy et al. (2003), Suto (2003), Baral (2004), Hall et al. (2004), Hovakimian et al. (2004), Chen (2004), Huang and Song (2006), Frieder and Martell (2006), Delcours (2007), Kayhan and Titman (2007), Abor (2007), Frank and Goyal (2009), Sibilkov (2009), Noulas and Genimakis (2011), Kayo and Kimura (2011), Sheikh and Wang (2012), Arvanitis et al. (2012), Chang et al. (2014)
				Syriopoulos and Tsatsaronis (2011), Syriopoulos and Tsatsaronis (2012), Tsionas et al. (2012), Andreou et al. (2014)
				Drobetz et al. (2013), Friend and Lang (1988), Berger et al. (1997), Wald (1999), Suto (2003), Hovakimian et al. (2004), Chen (2004), Frieder and Martell (2006), Delcours (2007), Frank and Goyal (2009), Sibilkov (2009), Oztekin and Flannery (2012)
	Size	SIZE	Natural logarithm of total assets	Ozkan (2001), Sibilkov (2009), Sheikh and Wang (2012), Arvanitis et al. (2012), Oztekin and Flannery (2012), Tsionas et al. (2012)
	Liquidity	LIQ	Ratio of Current Assets to Current Liabilities	Titman and Wessels (1988), Michaelas et al. (1999), Wald (1999), Ozkan (2001), Heshmati (2001), Drobetz and Fix (2003), Suto (2003),
	Non-Debt Tax Shield	NDTS	Ratio of Annual Depreciation Expense to	

		Total Assets	Chen (2004), Huang and Song (2006), Delcours (2007), Noulas and Genimakis (2011), Arvanitis et al. (2012), Oztekin and Flannery (2012), Chang et al. (2014)
Volatility (Business Risk)	RISK	Standard deviation of ROA	Friend and Lang (1988), Booth et al. (2001), Suto (2003), Huang and Song (2006), Delcours (2007), Noulas and Genimakis (2011)
CEO Duality	DUAL	A dummy variable, 1 if CEO is the Chairman, 0 otherwise	Randoy et al. (2003), Abor (2007), Syriopoulos and Tsatsaronis (2011), Sheikh and Wang (2012), Syriopoulos and Tsatsaronis (2012), Masulis et al. (2012), Andreou et al. (2014)
CEO Ownership	CEOWN	Ratio of shares held by CEO to total outstanding shares	Mehran (1992), Berger et al. (1997), Huang and Song (2006), Sheikh and Wang (2012), Masulis et al. (2012), Andreou et al. (2014)
Board Size	BODSIZE	Log(number of directors)	Berger et al. (1997), Oxelheim and Randoy (2003), Abor (2007), Sheikh and Wang (2012), Wen et al. (2002), Andreou et al. (2014)
Insider Ownership	INSIDER	Percentage of ownership of all shares that are controlled directly or indirectly by members of the board	Randoy et al. (2003), Syriopoulos and Tsatsaronis (2011), Sheikh and Wang (2012)
Board Composition	INDEP	Ratio of Independent Members to total BOD	Mehran (1992), Berger et al. (1997), Wen et al. (2002), Randoy et al. (2003), Oxelheim and Randoy (2003), Abor (2007), Syriopoulos and Tsatsaronis (2011), Sheikh and Wang (2012), Masulis et al. (2012), Andreou et al. (2014)
Foreign Members in	FOREIGN	Ratio of Foreign members to total BOD	Oxelheim and Randoy (2003), Nielsen and Nielsen (2010), Veen et al. (2014)

	BOD				
	Institutional Ownership	INTOWN	Ratio of shares held by institutional investors	Huang and Song (2006), Andreou et al. (2014)	
	Major Ownership	MAJOR	Percentage of the highest shareholder (either individual or institution)	Mehran (1992), Tsionas et al. (2012)	
	GDP Growth	GDP	Annual growth of GDP	Drobetz et al. (2013), Frank and Goyal (2009), Kayo and Kimura (2011), Oztekin and Flannery (2012)	
	Inflation	INF	Annual Inflation rate (consumer prices)	Booth et al. (2001), Delcours (2007), Frank and Goyal (2009), Bokpin (2009), Oztekin and Flannery (2012)	

3.4.2.2. Research Area

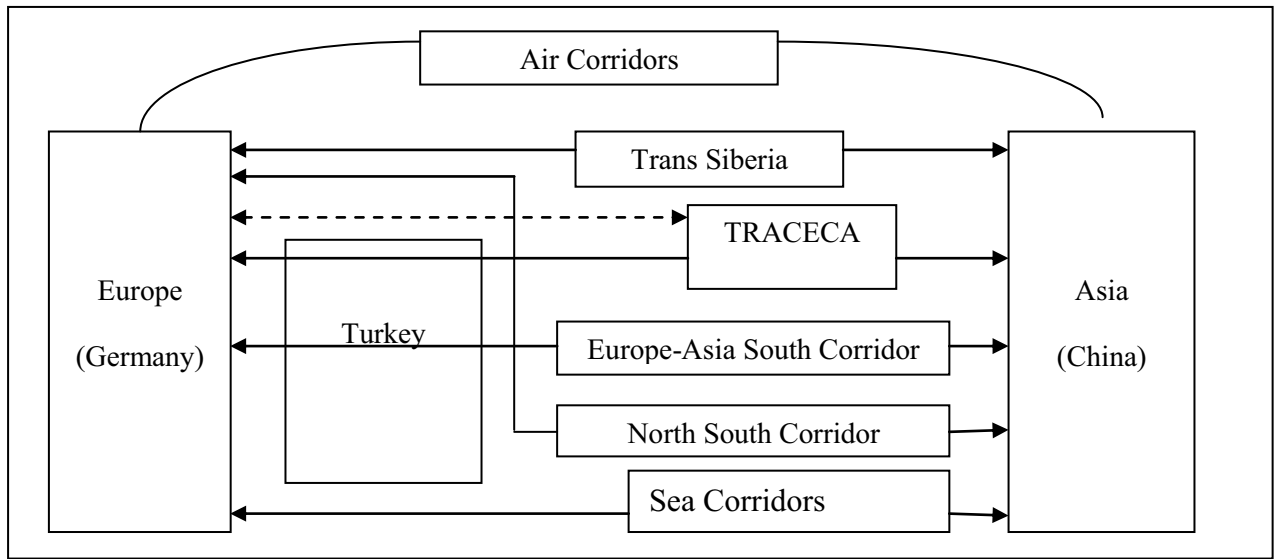
The research area of this study is Republic of Turkey, where the sampling firms in this study are operated in.

The Republic of Turkey is located at the crossroads of Asia and Europe. The country is encircled by the Black Sea, the Marmara Sea, the Aegean Sea and the Mediterranean Sea. It has borders with Georgia, Armenia, Azerbaijan (Nakhichvan) and Iran to the East, Bulgaria and Greece to the West, Syria and Iraq to the South and Russia, Ukraine and Romania to the North.

The area of the country is 814.578 km². The population is estimated to be over 80.7 million, of which 13.5 million people live in its largest city, Istanbul. With a coastline of 8.435 km, it does not come as a surprise that the maritime sector of Turkey is of outmost importance and that shipping is the most used mode of transport in Turkey as export 46 %, and import 59.1 % (Transportation in Turkey, 2011).

Turkey is an emerging economy (World Bank, 2013), whose geographical location that stretches from Asia to Europe and Russia to Africa. Accordingly, Turkey has been a natural bridge between the East and the West, serving as a junction between the continents of Asia and Europe, and amount of freight transport reaches to USD 2 trillion, which make it a hub in the region illustrated in the figure below. Thus, Turkey is one of the most vibrant economies among emerging countries (Deloitte, 2013).

Figure 15: Transportation Corridors through Turkey



Source: Çetin and Cerit, 2010: 53

According to the World Bank (2013) Turkey has the world's 15th largest economy in terms of Gross Domestic Product– Purchasing Power Parity (GDP-PPP). The opportunities have been recognized by many major transportation companies, which have located in the region due to increasing need for the transportation services to cover continual growth. According to Logistics Association in Turkey (LODER), current size of the logistics and transportation industry is estimated to be around USD 80-100 billion, and forecasted by 2017 USD 108-140 billion.

Turkey's location at the crossroads of major trade routes makes it an attractive destination for investment in transportation (Ermst&Young, 2013). According to the survey conducted by Jones Lang LaSalle (2012) to the European supply chain managers, geographical location of Turkey, strong economic growth and political stability make it one of the top three locations in Europe, Middle East and Asia region (EMEA).

CHAPTER FOUR

RESEARCH FINDINGS

4.1 DESCRIPTIVE STATISTICS

Table 16 shows the summary of the statistics of both dependent and independent variables. The mean dependent variable of the model LEV_1 that is the ratio of long-term liabilities to total assets is 24%. LEV_2 is also taken into consideration to highlight the ratio of total debt on total assets, and it is seen that the sum of short-term and long-term liabilities constitute approximately 64% of total assets. As a result, one can interpret this ratio as transportation firms, in the light of the sampling firms in this study, use substantially short-term debt for their capital needs instead of long-term debt. This situation makes liquidity important for these firms.

While the profitability is around 12%, tangible assets account for 49% of firms' total assets. Additionally, tax shields arising from accumulated depreciations and amortizations also provide higher contribution to the total assets with 33%. Market-to-book ratio is found around 3.

Considering the corporate governance practices, CEO Duality is a dummy variable as indicated previously, and according to the figures below, 23% of the sample is not only holds the CEO position but also acts as a chairman, and their ownership accounts for 2.8% of total capital. The mean of Size of the Board of Directors is around 6.76. Insider ownership, that is the ratio of the shares hold by the board members is around 11% of total capital, and institutional ownership is approximately 48%, leading to the conclusion that around a half of the firms analyzed belong to the institutions. Additionally, the mean of concentrated ownership is around 47,8% of total capital. According to the figures, the existence of independent members that constitute 7%, and foreign members that constitute 11% of board size can be regarded few.

Table 16: Descriptive Statistics

Variable	Observations	Mean	Standard Deviation
LEV ₁	132	0.23981	0.18439
LEV ₂	132	0.63579	0.48458
TANG	144	0.49324	0.26414
ROA	144	0.12577	0.23658
ROE	132	0.11390	1.21959
SIZE	144	18.39562	2.71487
LIQ	144	3.86131	15.19666
NDTS	124	0.32942	0.25479
RISK	144	-1.02e-09	1
MTB	111	3.03820	4.34657
CEODUAL	70	0.22857	0.42294
CEOWN	70	0.02781	0.06884
BODSIZE	70	6.75714	2.48144
INSIDE	70	0.10984	0.17602
INDEP	70	0.06888	0.12951
FOREIGN	70	0.10839	0.20394
INTOWN	73	0.47849	0.26282
MAJOR	75	0.47670	0.20065

To analyze the relationships between the variables used in this study, firstly Table 17 correlation matrix is produced. This table demonstrates the pair wise correlation coefficients of all variables. According to the table TANG and SIZE are positively and significantly correlated with LEV₁, whereas ROA, LIQ and RISK are negatively and significantly correlated with leverage. Considering total leverage, LEV₂ is found significantly and negatively associated with LIQ and ROA.

It is also found that among the independent variables, there are some significant correlations as well, for instance ROA-RISK, ROA-ROE, and ROE-RISK. Additionally it is found that ROA and RISK acts as if they are the same variables. These correlations between the independent variables may affect the models directly, and so does the consistency of the models. Therefore, during the model generation process, this factor is considered.

Table 17: Correlation Matrix

	LEV ₁	LEV ₂	TANG	ROA	ROE	SIZE	LIQ	NDTS	RISK	MTB
LEV ₁	1.0000									
LEV ₂	0.2180*	1.0000								
TANG	0.7566*	0.1477	1.0000							
ROA	0.0000	0.0911								
	-0.3694*	-0.2744*	-0.4706*	1.0000						
	0.0000	0.0015	0.0000							
ROE	-0.1657	-0.1266	-0.2192*	0.5668*	1.0000					
	0.0576	0.1480	0.0116	0.0000						
SIZE	0.5181*	0.0573	0.4547*	-0.3889*	-0.0956	1.0000				
	0.0000	0.5138	0.0000	0.0000	0.2756					
LIQ	-0.2312*	-0.2327*	-0.2983*	0.0082	0.0114	-0.0161	1.0000			
	0.0076	0.0072	0.0003	0.9224	0.8971	0.8480				
NDTS	0.0595	0.0457	0.2982*	-0.0448	-0.0660	-0.0089	-0.2165*	1.0000		
	0.5332	0.6324	0.0008	0.6214	0.4891	0.9220	0.0158			
RISK	-0.3694*	-0.2744*	-0.4706*	1.0000*	0.5668*	-0.3889*	0.0082	-0.0448	1.0000	
	0.0000	0.0015	0.0000	0.0000	0.0000	0.0000	0.9224	0.6214		
MTB	-0.0690	0.0432	0.0076	0.0243	-0.0603	-0.1100	-0.0937	0.3742*	0.0243	1.0000
	0.4846	0.6617	0.9371	0.7999	0.5411	0.2506	0.3277	0.0001	0.7999	

4.2. RESULTS OF PANEL DATA ANALYSIS

Table 18, 19 and 20 reports the panel data analysis results for the determinants of sampling firms' capital structure. All analyses are conducted by using "Stata 11" statistics software package. First of all, the determinants are divided into 3 categories in terms of the research model. The first includes the conventional ones, namely; TANG, ROA, ROE, SIZE, LIQ, MTB, NDTs and RISK. The second is macroeconomic variables, which are GDP and INF, and the last one is corporate governance variables namely: CEODUAL, CEOWN, BODSIZE, INSIDE, INDEP, FOREIGN, INTOWN and MAJOR. Then, the determinants in the first and second categories are applied together within 6 sub-models. Fixed effects model and random effects model are applied to each sub-model of the analysis, and Hausman test is applied to all of them to correct their validity. Should the probability value of Hausman test is below 0.005, and then fixed effects model is considered, otherwise random affect is taken into consideration.

According to the results of the first model group that is demonstrated in the table 18, TANG is significant at 0.1% level in all models, and SIZE is also significant for 5 models at the same level. Only in one model it is significant at 1% level. INF is significant in two models at 10% level.

The first and the third categories of the determinants of the model constitute the second part of this analysis. According to the results as indicated in the table 19, TANG and SIZE maintain their consistency in all models. They are found significant at 0.1% level in 4 models, and only one model at 1% level. Additionally, from the corporate governance perspective, only BODSIZE is significant in two models. In one model its significance at 5% and in other model at 10% level.

As asserted previously, the ratio of the sum of short term and long-term debt to total asset, in other words total leverage, constitute of 64% of total assets, however long-term leverage accounts for 24% of total assets, led to the conclusion that firms analyzed in this study use more short term debt than long-term debt to cover their capital needs. Therefore in the table 20, total leverage whose abbreviation is shown as LEV_2 is regarded as dependent variables. And it is seen that the significant variable TANG shown in the table 18 and 19 is not significant any longer. Instead, it

is found that SIZE is significantly correlated with total leverage in all models. LIQ is significant for five models. Furthermore, ROA is significant in two models,

GDP and INF as country-level variables are significant in only one model. Considering the corporate governance practices, INTOWN is significant in four models, also CEOWN is significant in one model and finally INDEP is significant in three models.

Corporate governance variables, LIQ and ROA are not significant if the dependent variable is chosen as long-term leverage, while seem significant if the dependent variable is chosen as total leverage.

Table 18: Results of the panel data analysis

Variables	Pred.	Dependent Variable: LEV ₁					
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TANG	+	0.5133359 (0.000)****	0.5430905 (0.000)****	0.5133359 (0.000)****	0.522311 (0.000)****	0.522311 (0.000)****	0.5414166 (0.000)****
ROA	-	0.0439006 (0.410)				-0.0494708 (0.451)	
ROE	-		0.0163259 (0.198)				0.0093703 (0.486)
SIZE	?	0.0241633 (0.000)****	0.0200522 (0.000)****	0.0241633 (0.000)****	0.0343172 (0.000)****	0.0343172 (0.000)****	0.030431 (0.001)***
LIQ	?	-0.0002805 (0.646)	-0.0002678 (0.638)	-0.0002805 (0.646)	-0.0004308 (0.482)	-0.0004308 (0.482)	-0.0002133 (0.714)
NDTS	-	-0.0500499 (0.292)	-0.0407895 (0.406)	-0.0500499 (0.292)	-0.0802224 (0.123)	-0.0802224 (0.123)	-0.0599212 (0.237)
RISK	?			0.0103861 (0.410)	-0.0117039 (0.451)		
MTB	?	0.0003935 (0.868)	-4.98e-06 (0.998)	0.0003935 (0.868)	-0.0010663 (0.658)	-0.0010663 (0.658)	-0.0003622 (0.879)
GDP	?				0.236125 (0.240)	0.236125 (0.240)	0.2049044 (0.309)
INF	?				0.1262707 (0.063)*	0.1262707 (0.063)*	0.0859383 (0.167)
_Cons		-0.470738 (0.000)****	-0.4099603 (0.000)****	-0.4652168 (0.000)****	-0.6970871 (0.000)****	-0.6908653 (0.000)****	-0.6316305 (0.001)***
Obs.		99	99	99	99	99	99
R ² (within)		0.5224	0.5374	0.5224	0.5518	0.5518	0.5514
Random or Fixed		Random	Fixed	Random	Fixed	Fixed	Fixed
VIF		1.42	1.36	1.42	1.79	1.79	1.76

* Statistical significance at 10% level (p<0.1) ** Statistical significance at 5% level (p<0.05) *** Statistical significance at 1% level (p<0.01)

**** Statistical significance at 0.1% level (p<0.001)

Table 19: Result of the panel data analysis (Continued)

Variables	Pred.	Dependent Variable: LEV ₁				
		Model 1	Model 2	Model 3	Model 4	Model 5
TANG	+	0.3529852 (0.000)****	0.3472327 (0.000)****	0.2872296 (0.001)***	0.3475423 (0.000)****	0.3609192 (0.000)****
ROA	-			-0.1794241 (0.118)	-0.1884464 (0.107)	-0.1845176 (0.105)
ROE	-	-0.0283773 (0.644)	-0.0161133 (0.802)			
SIZE	?	0.0801798 (0.000)****	0.0920458 (0.000)****	0.0849478 (0.000)****	0.053832 (0.001)***	0.0548204 (0.000)****
INTOWN	?	0.0428313 (0.669)	0.1043923 (0.430)	0.0890465 (0.493)		
MAJOR	?	0.1809799 (0.131)	0.1852969 (0.209)	0.1940572 (0.162)		
CEODUAL	?		-0.0193686 (0.640)	-0.0226239 (0.576)		
CEOWN	?		0.3842748 (0.543)	0.3625297 (0.564)		-0.3549522 (0.349)
BODSIZE	?				0.0922398 (0.055)*	0.0993039 (0.025)**
INDEP	?				0.0315928 (0.782)	
FOREIGN	?				0.0445607 (0.657)	
INSIDE	?					0.0392945 (0.757)
_cons		-1.608406 (0.000)****	-1.890234 (0.000)****	-1.701119 (0.000)****	-1.152167 (0.000)****	-1.177649 (0.000)****
Obs.		68	65	65	65	65
R² (within)		0.5830	0.6082	0.6157	0.5457	0.5364
Random or Fixed		Random	Random	Random	Random	Random
VIF		1.87	2.29	2.26	1.76	1.71

* Statistical significance at 10% level (p<0.1) ** Statistical significance at 5% level (p<0.05) *** Statistical significance at 1% level (p<0.01) **** Statistical significance at 0.1% level (p<0.001)

Table 20: Result of the panel data analysis (Continued)

Variables	Pred.	Dependent Variable: LEV ₂					
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TANG	+	-0.3495002 (0.260)	-0.0399551 (0.798)	0.1376774 (0.418)	0.2717504 (0.086)*	0.2544014 (0.115)	0.2095881 (0.112)
ROA	-	-0.8033583 (0.003)***	-0.299802 (0.337)	-0.1226929 (0.694)			-0.3367338 (0.064)*
ROE	-				0.179931 (0.207)	0.1514067 (0.305)	
SIZE	?	0.0615119 (0.089)*	0.1633223 (0.000)***	0.2039758 (0.000)***	0.1944619 (0.000)***	0.2094073 (0.000)***	0.0589838 (0.006)***
LIQ	?	-0.0083903 (0.005)***	-0.0019414 (0.054)*	-0.0017479 (0.076)*	-0.0018174 (0.061)*	-0.0017048 (0.102)	-0.0024904 (0.009)***
GDP	?	1.73097 (0.051)*	-0.197078 (0.592)	-0.2171775 (0.561)	-0.0162022 (0.965)	-0.1002591 (0.790)	
INF	?	0.4971186 (0.067)*	0.1140443 (0.592)	0.1202047 (0.711)	-0.2210789 (0.463)	-0.1559577 (0.610)	
INTOWN	?		0.5455633 (0.001)***	0.5729257 (0.001)***	0.5996856 (0.000)***	0.5925702 (0.000)***	
CEODUAL	?		-0.017099 (0.802)	-0.0034499 (0.959)	0.0011028 (0.987)		
CEOWN	?		3.525641 (0.149)	3.682863 (0.128)	4.073113 (0.086)*		
BODSIZE	?			0.0529055 (0.554)	0.0811447 (0.361)	0.0379583 (0.703)	0.0767326 (0.269)
INDEP	?			-0.4325979 (0.040)**	-0.4773758 (0.021)**	-0.5053459 (0.018)**	
FOREIGN	?					0.0271929 (0.901)	
_cons		-0.4240084 (0.567)	-3.057917 (0.000)***	-4.085014 (0.000)***	-4.056979 (0.000)***	-4.144597 (0.000)***	-0.8400039 (0.034)**
Obs.		132	65	65	65	65	65
R ² (within)		0.1352	0.5228	0.5742	0.5881	0.5583	0.3311
Random or Fixed		Fixed	Fixed	Fixed	Fixed	Fixed	Random
VIF		1.68	2.17	2.46	2.59	2.12	1.41

* Statistical significance at 10% level (p<0.1) ** Statistical significance at 5% level (p<0.05) *** Statistical significance at 1% level (p<0.01) **** Statistical significance at 0.1% level (p<0.001)

4.3. SUMMARY OF THE FINDINGS

The results of the analysis demonstrate that tangibility is significantly and positively associated with the long-term leverage supporting trade off theory, and this finding is consistent with Chittenden et al. (1996), Michaelas (1999), Wald (1999), Booth et al (2001), Hall et al. (2004), Chen (2004), Huang and Song (2006), Delcuore (2007), Frank and Goyal (2009), Kayo and Kimura (2011), Sheikh and Wang (2012). Trade off theory suggests that tangible assets lose less of their value in comparison to intangibles when the firm goes bankruptcy (Drobetz et al., 2013: 53). Additionally, firms with higher tangibility can use their tangible assets as collateral to obtain debt easily, and therefore they may increase their leverage ratio (Booth et al., 2001: 101). According to this finding, transportation companies with higher tangibility in Turkey tend to use more leverage. However, no significant relationship could be found between “Tangibility” and “Leverage” by Yıldız et al. (2009) for the manufacturing firms listed on BIST; Yakar (2011) for all firms listed on BIST, Şahin (2012) for sports firms listed on BIST, Titman and Wessels (1988) for the United States (US) manufacturing firms, and Barton et al. (1989) for the industrial firms listed on Fortune 500.

Furthermore size is also significantly and positively associated with long-term leverage consistent with Chittenden et al. (1996), Michaelas (1999), Wald (1999), Booth et al. (2001), Hall et al. (2004), Huang and Song (2006), Rajan and Zingales (1995), Chang et al. (2009), Kayo and Kimura (2011), Sheikh and Wang (2012). This positive relationship may also be interpreted in terms of trade off theory (Drobetz et al., 2013: 53). According to the trade off theory, since direct bankruptcy costs are fixed by constitution and constitute a smaller proportion of the total firm’s value, larger firms don’t consider these costs as an active variable in deciding the level of leverage as asserted by Warner (1977). Furthermore, larger firms being more diversified have less chances of bankruptcy as indicated by Titman and Wessels (1988). To sum up, larger transportation firms, in the light of our sampling, tend to use more leverage for their capital needs. However, Karadeniz et al. (2009) investigated the lodging firms listed on ISE and reported that firm size has no significant effect on leverage. Also, Terim (2009) examined the manufacturing firms

listed on ISE and could not find statistically significance between size and leverage, so does Akman (2012) in his study on industrial firms listed on ISE. Mehran (1992) also examined the industrial firms on the Compustat industrial database to find out the effect of corporate governance practices of these firms on their capital structures, and among the evidences there is no clue on the relationship between firm size and long-term leverage.

The interesting point of the results is that there is no significant relationship is found between profitability and long-term leverage. However, profitability has been generally found by many previous studies as significant at high levels. For instance, Drobetz et al. (2013), and Arvanitis et al. (2012) investigated how the determinants of capital structure affect the financing decisions of the maritime firms listed on global foreign exchanges, and they found that profitability is negatively and significantly correlated with leverage. Ozkan (2001) found the same conclusion with high significance for the UK companies excluding financial sector and utilities. Kester (1986) compared the capital structures of Japanese and US manufacturing companies, Friend and Lang (1988), Shyam-Sunder and Myers (1999), and also Baskin (1989) reached the evidence that profitability is negatively and significantly correlated with leverage, and all these finding support the pecking order theory. From the other side, Bowen et al. (1982), Dammon and Senbet (1988) and Givoly et al. (1992) found significant and positive relationship between profitability and leverage. Considering our evidence, Kınay (2001) also could not find any relationship between profitability and leverage for the lodging firms both listed on ISE and unlisted.

Additionally, there is a weak positive relationship between leverage and Inflation as a country-level variable consistent with Booth et al. (2001) and Doğukanlı and Acaravcı (2004). From corporate governance perspective, only Board Size is has a weak positive significance on leverage consistent with Lu et al. (2012), Abor (2007) and Sheikh and Wang (2012).

The findings above are significant when the dependent variable is taken as long-term leverage. However, as indicated in the table 21, Tangibility is no longer consistent with total leverage, which also includes short-term debt. This means that tangible assets are funded by using long-term debt. As a result, liquidity and thus

profitability become important; since short-term debt can be paid back only if the firm is more profitable and thus has higher liquidity. Furthermore, considering total leverage instead of long-term leverage as dependent variable, significant relationships are found between; ROA, SIZE, LIQ as firm level, GDP and INF as country-level, and CEOWN, INDEP and INTOWN as corporate governance variables and total leverage.

Considering the hypotheses developed;

Hypothesis 1 is confirmed as the firms with more tangible assets increase their long-term leverage ratios.

Hypothesis 2 is confirmed, as the larger firms tend to increase their leverage.

Hypothesis 3 is rejected, as neither ROE nor ROA have significant effect on long-term leverage. However, if the dependent variable is chosen as total leverage instead of long-term leverage; significant, negative but weak relationship is found between ROA and total leverage.

Hypothesis 4 is rejected, as there is no significant evidence on the effect of liquidity on leverage. However, if the dependent variable is chosen as total leverage instead of long-term leverage, total leverage is negatively and significantly correlated with firm liquidity at high levels.

Hypothesis 5 is rejected, as there is no evidence on the effect of growth opportunities on leverage.

Hypothesis 6 is rejected, as there is no evidence on the effect of non-debt tax shield on leverage.

Hypothesis 7 is rejected, as there is no evidence on the effect of volatility (business risk) on leverage.

Hypothesis 8 is accepted for both long-term leverage and total leverage. However, it is reported that if the dependent variable is chosen as total leverage, the effect of corporate governance variables on total leverage increases.

CONCLUSION

Transportation is one of the vital components of global economy. Its contribution to country GDP is remarkable as being a service industry. Due to the industrialization and also globalization that begun after 1950s, commodities and passengers are rapidly carried all around the world. The goods where their production costs are higher, or in case of absence, are obtained easily from another place by means of efficient transportation modes. Additionally, people can be easily and rapidly transported from any point of the world to another place thanks to modern aircrafts and efficient ground services. However, the vehicles and equipments used in this industry are highly capital intensive. Since the new regulations and quality standards, tough competition among the rivals, increasing insurance and maintenance costs with older vehicles, technological developments and also increasing demand; firms in this industry need to continuously conduct new investments. In line with this condition, financing of these investments may generate difficulties.

The start point of this study is to examine how the determinants of capital structure affect the financing decisions of the firms operating in transportation industry in Turkey. Although, there are several studies in finance literature on determinants of capital structure, it is seen that transportation industry has been rarely considered. Additionally, the future directions of these studies generally point out that the corporate governance practices can influence the capital structure decisions as the firms use capital markets when their internal funds are not sufficient and also bank loans cannot be used any longer. However, capital markets appreciate the good corporate governance practices as it reduces the probability of agency problems as indicated by Jensen and Meckling (1976). Additionally, these practices generate sustainability of the firm and also protection of outside investors. Although it has several benefits, literature on corporate governance for the transportation firms is very limited, and it is seen that there is not neither a study nor dissertation conducted for the determinants of capital structure including corporate governance in Turkey for transportation industry. Therefore, it is aimed to provide contribution to the literature with this study.

In line with the aim of this study, hypotheses have been developed in terms of the empirical results of the previous studies for each determinant, namely: Tangibility, size, profitability, liquidity, growth opportunities, non-debt tax shield, volatility (business risk), and corporate governance practices. Additionally, Turkey's GDP growth and also annual inflation rates are taken into consideration to evaluate the country-level effect on capital structures of the related firms. Furthermore, two research models are generated by applying different dependent variables. Long-term leverage is considered as dependent variable in the first model, while total leverage in the second model. All variables included in both models have been calculated based on the previous related studies.

Findings of this study suggest that tangibility and size of the firms analyzed are positively and significantly affect the long-term leverage at high levels. These findings can be interpreted in terms of trade-off theory.

According to the trade off theory, tangible assets lose their values compared with the intangibles when the firm goes bankruptcy. Additionally, debts are secured by considering these assets as collateral, because they are easily valued by the creditors. As a result, lower information asymmetry, less pronounced agency cost of debt, and higher debt capacity occur.

Transportation is a service industry for movement and handling of the goods and passengers, and these activities can only be conducted by using the vessels, aircrafts, trucks, locomotives, pipelines, terminals, and other related equipments. According to the results, firms operating in this industry in Turkey expand their fleet or equipment by generally using long-term debt, as their benefits are higher than going bankruptcy based on trade-off theory. However, some studies could not report the same findings such as Yıldız et al. (2009) for manufacturing firms listed on ISE, Yakar (2011) for the firms, without sector distinction, listed on ISE and Şahin (2012) for the sports firms listed on ISE. Also, Titman and Wessels (1988) for US manufacturing firms and Barton et al. (1989) for the firm listed on Fortune 500.

The positive and significant relationship found between size and long-term leverage also supports the trade off theory. According to this theory, larger firms don't consider direct bankruptcy costs as an active variable in deciding the level of leverage as these costs are fixed by constitution and account for a smaller proportion

of the total firm's value. Additionally, larger firms have less chances of bankruptcy.

The proxy of size is considered as the natural logarithm of total assets the firm owns. As the transportation industry, especially ship owners and airlines are highly capital intensive compared with the other industries; size might be considered one of the main determinants of the financing decisions of this industry. On the other side, it is seen that this finding is not in line for some industries. For instance, Karadeniz et al. (2009) could not report this finding for the lodging firms belong to tourism industry which is considered as one of the other service industry as same as transportation, so does Akman (2012) for industrial firms listed on ISE. Mehran (1992) also examined the industrial firms on Compustat industrial database to figure out how corporate governance practices affect capital structure decisions, and it is found that firm size has no significant effect.

The interesting part of this study is insignificance instead of significance. Because, when we focus on literature, it is seen that other determinants, such as profitability is found significant at high levels. For instance, Drobetz et al. (2013), and Arvanitis et al. (2012) investigated how the determinants of capital structure affect the financing decisions of the maritime firms listed on global foreign exchanges, and they found that profitability is negatively and significantly correlated with leverage. Ozkan (2001) found the same conclusion with high significance for the UK companies excluding financial sector and utilities. Kester (1986) compared the capital structures of Japanese and US manufacturing companies, Friend and Lang (1988), Shyam-Sunder and Myers (1999), and also Baskin (1989) reached the evidence that profitability is negatively and significantly correlated with leverage, and all these finding support the pecking order theory. From the other side, Bowen et al. (1982), Dammon and Senbet (1988) and Givoly et al. (1992) found significant and positive relationship between profitability and leverage. However, there is no evidence on profitability in this study. Other ones, such as market-to-book, liquidity, non-debt tax shield, and volatility that have generally been found significant by some studies, are also found insignificant in this study. If the studies on the firms operating in Turkey, Kınay (2001) has reported the same insignificance between profitability and leverage for the lodging firms both listed on ISE and unlisted. Although tourism and transportation are both regarded as service industries, the findings of Kınay

(2001) and Karadeniz et al. (2009) for the lodging firms are different from this study based on transportation firms in Turkey.

If total leverage is considered as dependent variable instead of long-term leverage, it is seen that significance of tangibility is no longer consistent. Furthermore, negative relationship between total leverage and liquidity and profitability occur. This can be interpreted that the tangible assets are funded by using long-term debt, instead of short-term debt in the transportation firms in Turkey. However, considering the higher proportion of short-term debt demonstrated in the table 16, and in line with the findings, these firms initially use short-term debt instead of long-term debt for their other capital needs. Thus, to meet the obligations and to pay back these debts, these firms need to be more profitable, and liquid accordingly. Furthermore, corporate governance variables are found significant in both models. However, if the total leverage is concerned, the level of significance of these variables increases.

The main limitation of this study is the sample size. As the firms in this industry are generally closed to the external environment, it is hard to hand-collect their financial data. Results of this study are only consistent with these observations, and studies with the wide range of data may generate different results.

For the future research directions, more evidence is needed to understand the determinants of capital structure for transportation industry with larger samples. The effects of financial crises might be examined as well. Additionally, subsectors of the industry can be examined individually.

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