Performance and Profitability of the Technology Sector in Istanbul Stock Market

Benan Çetin

Submitted to the
Institute of Graduate Studies and Research
in partial fulfillment of the requirements for the Degree of

Master of Science
in
Banking and Finance

Eastern Mediterranean University
August 2012
Gazimağusa, North Cyprus

Approval of the Institute of Graduate Studies and Research

—————————————————————
Prof. Dr. Elvan Yılmaz
Director

I certify that this thesis satisfies the requirements as a thesis for the degree of Master of Science in Banking and Finance.

—————————————————————
Assoc. Prof. Dr. Salih Katırcıoğlu
Chair, Department of Banking and Finance

We certify that we have read this thesis and that in our opinion it is fully adequate in scope and quality as a thesis for the degree of Master of Science in Banking and Finance.

—————————————————————
Assoc. Prof. Dr. Nesrin Özataç
Supervisor

Examining Committee
——

1. Assoc. Prof. Dr. Nesrin Özataç   ——————————————————————

2. Assoc. Prof. Dr. Salih Katırcıoğlu   ——————————————————————

3. Assoc. Prof. Dr. Sami Fethi   ——————————————————————

ABSTRACT

The purpose of this paper is to analyze the financial performance of the Technology Sector in Istanbul Stock Market. There is a paucity of studies on technology sector. And this thesis can be considered one of the studies done on this topic. There are 11 companies which were operating between the period of 2006 and 2011 and they are all used in the analysis. The empirical results suggest that the equity and size of the companies are playing the main role on the profitability. Turkish technology companies are generally equity based and use short term debt, but in recent years there is an increase in the usage of long term debts.

Keywords: Technology Sector, financial performance, profitability, Istanbul Stock Market, ISM

ÖZ

Bu çalışma İstanbul Menkul Kıymetler Borsasındaki Teknoloji Sektörünün karlılığını ve sermaye yapısını incelemektedir. Çalışma İstanbul Menkul Kıymetler borsasına 1988 de ilk giren şirketten, 2012 senesinin Haziran ayına kadar girmiş toplam 11 şirketi kapsamaktadır. Yapılan analizler sonucu, likidite miktarının, özsermaye oranının ve büyüklüğün şirketler üzerinde olumlu etkisi olduğu görülmüştür. Ayrıca Türk teknoloji şirketleri genel olarak özsermaye tabanlıdır ve kısa vadeli borç kullanmaktadırlar. Fakat son yıllarda özsermayede ve kısa vadeli borçlarda azalma, uzun vadeli borçlarda artma görülmüştür.

Anahtar Kelimeler: Istanbul Menkul Kıymetler Borsası, IMKB, performans, karlılık, teknoloji sektörü

ACKNOWLEDGEMENTS

First of all, I would like to thank to my God for blessing me with his enormous benevolence. In addition, I would like to thank my dear supervisor Assoc. Prof. Dr Nesrin Özataç for her guidance and Nigar Taşpınar for her help on SPSS analyzes.

It should be mentioned that my thesis is dedicated to my family. So I would also like to thank my family, my father Avni Çetin, my mother Meryem Çetin and my brother Alper Çetin for their support.

TABLE OF CONTENT

LIST OF TABLES

LIST OF ABBREVIATIONS

ROA   Return on Assets

ROE   Return on Equity

CR   Capital Ratio

LQR   Liquidity Ratio

MGMT   Management

LSIZE   Natural logarithm of total assets

STL   Short Term Liabilities

LTL   Long Term Liabilities

TE   Total Equity

STD   Short Term Debt

LTD   Long Term Debt

Chapter 1

INTRODUCTION

1.1 Background of the study

Technology is invading our lives in all ways like mobile devices and social media by the help of the Internet. The technology is becoming one of the highest potential sectors in the stock markets. In US stock markets this sector is one of the fastest growing one and several number of companies in the sector currently yield more than 10-year US treasury[1]. Profitability and the sector size of this sector are also increasing by the help of more than 150 companies[2]. But as in all sectors, these numbers are different from one stock market to another stock market. In Turkey, there are 11 companies, and all these companies are very new compared to the world stock markets. For instance, the oldest company that entered in the technology sector was in 1983 in Turkey. Due to the rapid growth of the use of the Internet, technology, and communication (we may call it information technology devices), the technology sector in Turkey is developing as it develelops around the world. For the reason that Turkey is quite new in this sector and generally technology sectors include aspects of IT companies, therefore, a term "Technology" will be used instead of the term "Information Technology" in this study.

---

[1] http://www.bespokeinvest.com/thinkbig/2011/6/27/highest-yielding-tech-sector-stocks.html
[2] http://investing.businessweek.com/research/sectorandindustry/sectors/sectordetail.asp?code=45

1.2 Aim of the study

The main goal of this study is to analyze the technology sector in Istanbul Stock Market and find out how profitable it is. There has not been any research conducted in relation to the technology sector in Istanbul Stock Market. Thus, this study is considered to be the first that analyzes the technology sector in Istanbul Stock Market.

1.3 Scope of the study

In order to analyze the performance of the technology sector in Istanbul Stock Market, firstly, the detailed information about the companies' background, operation and capital structure were obtained. Some of these companies are producers, some of them are distributors, and some of them are involve both. Secondly, in order to evaluate the performance of the technology sector such ratios as Return on Equity (ROE), Return on Assets (ROA), Short Term Debt (STD), Long Term Debt (LTD) were used in this study. Lastly, the capital structure of the companies was examined

1.4 Structure of the Study

There are totally 7 chapters in the study. First chapter is the introduction part which provides information about the background and structure of the study. Second chapter presents literature review and related studies in the field. Third chapter investigates the Technology Sector in general, usage of the technology and the issues in the developed countries. Fourth chapter looks at the Technology Sector in Istanbul Stock Market and gives information about the companies in the technology sector. Fifth chapter explains the methodology and presents the data obtained as a result of the analysis. Sixth chapter presents the results and empirical analysis of the findings. Last chapter focuses on conclusions and suggestions for future studies.

Chapter 2

LITERATURE REVIEW

2.1 Related Studies

There has not been any study carried out about the technology sector in Istanbul Stock Market. For this reason, there has not been sufficient sources found related to this subject. Therefore, this study is considered to be the first in its field. Nevertheless, several academic papers were utilized while reviewing the history of the markets and the conditions in world market sectors.

In his study, Francesco Daveri (2001) emphasized that the economic growth gap between the US and EU is the cause of the adoption of new technologies and day by day this gap is disappearing. In addition, he mentions that even though US is the inventor and the leader in producing and developing any kind of technology, EU is about to reach the success of US in relation to technology advances.

In his speech, Lars Nyberg (2002) tries to explore answer for the question "is IT was another "bubble" in financial sector", and explains reasons why some countries are successfully growing and why others are not getting used to this adoption. Experiences of the most successful country in IT during 2000s which is Sweden is given as an example by concluding the report with an explaining of the effects of the government in IT industry.

In 2003, in another study by Nirkivar Singh, the information technology sector in India was analyzed and it was concluded that the government plays an important role in the growth of countries.

Barry P. Bosworth and Jack E. Triplett (2000) examined the sectors that are growing fast in US and the world. The impact of IT on other sectors and the effects of the labor productivity were analyzed and compared with the results of OECD countries. The results provided answers of why US is the leader.

On the other hand, Oral Erdogan, (2010), as a result of his analysis of the performance of the Istanbul Stock Exchange there was no quality of the stock picking ability found. It is suggested that the investors should be alert about being selective regarding the investments.

Interesting results were found in a study by Raul L. Katz (2012) which focused on the impact of Telecommunication in Senegal. Telecommunications account in Senegal was found to be over 10% of GDP as a direct economic impact. In addition, mobile telephony was found to be contributing to 13.6% of the economic growth.

Stewart (2006) worked on the subject of innovation and firm performance in technology regimes that consist of 845 Canadian manufacturing firms. And he came up with three main findings; firstly, there is a positive correlation between firm level innovation and industry-level dynamism. Secondly, the results suggest that there is a positive relationship with the firm performance and innovation. In addition, he mentions that this relationship was not controlled by the industry dynamism, so it is

possible to say that innovation is positively correlated with revenue growth. Lastly, the results of his study imply that innovation, industry dynamism and firm knowledge have a positive relationship with the performance of the firm. Therefore, innovative new products have a great impact on revenue growth as long as knowledge assets are high.

Osanu and Hann (2008) focused on innovation and trade in Korean communication technology sector. They declared importing technology in form of capital goods, components and licensing is the only need for a developed Korean technology sector. They also touched upon the subject that public research and development play an important role in diffusing and acquiring the technology. They explained that the system in Korea is innovative, even though it is deeply integrated with the global innovation in the technology sector, Korea has some barriers in front of them such as the policies like industrial policy, R&D policy that obstruct the development of the technology sector.

A study on the profitability has also been carried out by Saswata (2012) focusing on a sample of 100 Indian companies in the Bombay Stock Exchange for 2 years (2010-2011). He included the ratios that are, fixed assets on total assets, the debt ratio, and the size of the firm (natural logarithm of sales) to measure the working capital management. Apart from these, he included correlation analysis and the regression analysis. The results showed that there is a negative relationship between profitability ratios and the components of working capital management for the Indian firms which means that increase in the cash conversion cycle will decrease the

profitability of the company, that time managers might shorten the cash conversion

cycle to a minimum level he suggests for to appreciate the shareholder's value.

Chapter 3

TECHNOLOGY SECTOR

3.1 The Significance of the Sector

Technology has a special role for the growth of the countries because of the facilities it provides. It changes the balances of the world as it affects the countries in many ways especially economically. With the emergence of the Internet era, technology started to play an important role in people's life affecting their behavior. The main advantage of the Internet which is easy access to information at any time changes people's life, behaviors and even dreams. In fact, this even changed the leaders of the countries as it can be observed in "Arab Spring".

Currently, there are many countries in the world trying to be developed in the technology field. In some countries government offers special help to let firms be able to adopt technology easier. However, some governments do not provide enough support for this kind of adoption.

3.2 Technology Era and the Information Technology

Regarding the world's development era, there are some waves and we may see that Information Technology (IT) is the third and the last wave of it. The British industrial revolution in 1760-1850 can be considered as the first technological wave. The rise of electricity in 1890 and 1930 can be considered as the second industrial revolution. Finally, the third industrial revolution can be the growth of IT.

In order to talk about information technology the history of the computers should be focused on. As a matter of fact, everything around us is about the technology and the computers are part of it.

3.3 The History of Computer

The first use of the word "computer" meant a person who carries out calculations and computations was born in 1613. Until the middle of the 20th century this word stayed in this meaning. After 21th century, the meaning had some changes and it became "a machine that carries out computations".

One of the hardest question in the computer sector is "When was the first computer built?" It is difficult to answer this question since there is actually no "first computer". A computer is associated with "a machine that carries out computations", but a simple calculator is also a kind of computer.

To examine the background of computers closely, we may start with the "first mechanical computer that was produced in 1822 by Charles Babbage. The name of the first mechanical computer was "Difference Engine" and in computer books, this machine was called as "first automatic computing engine". In 1837, Charles Babbage developed the "Analytical Engine" and this analytical engine was called "Arithmetic Logic Unit", which was also classified as first general-purpose computer.

In1936, "First Programmable Computer" was created and the computer's name was "Z1" which was invented by Konrad Zuse from Germany in his parents' living room within two years until 1938. This computer was also called as "First Electro Mechanical Binary Programmable Computer" and this was also the first functional

computer.

The first electric programmable computer named as "Colossus" was invented in 1943 by Tommy Flowers. The computer was actually created for reading encrypted German messages and for helping British code breakers.

There are some misunderstandings in relation to the acceptance of the first business computer (also digital computer). Some sources say that "ABC" (Atanasoff-Berry Computer) that was developed in 1942 by Vincent Atanasoff is the first business (also digital) computer. While others believe that the first business computer is "ENIAC" that was developed by John Eckert and John Mauchy. In 1972, US federal judge signed his decision that the ENIAC patent by Eckert and Mauchy was invalid and declared that Atanasoff is the inventor of the digital computer even though ENIAC was the fully functional and better.[3]

People needed to store programs after they were able to solve the problems by computers. So "EDSAC" was invented in 1949 and declared as the "first stored program electronic computer". In the same year, the first computer game "BABY" was played in this computer. During these years, "First Computer Company" was also established, and the name was "Electronic Controls Company" by John Presper Eckert and John Mauchy. These people were the same people who helped the invention of the "ENIAC" computer. Later, the company changed its name into "EMCC" that was known as "Eckert Mauchly Computer Corporation". The name has changed with the release of the "UNIVAC" mainframe computers. In addition, in

---

[3] http://www.computerhope.com/issues/ch000984.htm

1950 the computer "UNIVAC 1101" (also known as "ERA 1101") was produced. This computer was able to store and run program from the memory. During these years in 1950 "Z4" – the first "Commercial Computer" by Konrad Zuse was sold to Eduart Stiefel who is a mathematician of the Swiss Federal Institute of Technology in Zurich.

In 1952, IBM announced the computer "701" as the first electric and mass produced computer.   Later on, IBM announced its first computer that is known as "IBM PC" also knows as "ACORN" as its codename. It had 8088 processor, 16 KB of memory and expand ape to 256 utilizing MS-DOS.

In 1955, "Whirlwind Machine" was introduced by MIT, known as the first digital computer with magnetic core – RAM.   Then "PDP-1" was released by "Digital Equipment Corporation" in 1960.   The first "Mass-Market PC introduced to the markets by "Hewlett Packard" was in 1968.   These years a lot of innovations were made in computer sector such as "The First Microprocessor" was made by Intel in 1971 and named as "Intel 4004". In 1974, the first workstation was produced which is known as "Xerox Alto" that had a display and mouse and operated like many computers today, also had "windows", "menus" and "icons" like the recent computers, however, it was never sold. One year after, "the first personal computer" was invented known as "Altair 8800" by Ed Roberts, but some sources here say that "Kenback-1" is the first personal computer that was sold in 1971. Similarly, the "micral" was known as the first commercial non-assembly computer in 1973.

As the technology advances, nowadays such devices as Ipods, Iphones and other apple products are used around the world. The "Apple" company was established in 1976, and became the "Apple Computer" in 1977. The first apple computer which is "Apple I" was produced by Steve Wozniak. While Apple was working on its first computer, IBM produced the "First Portable Computer" in 1975 named as "IBM 5100". But most people believe that the first real portable computer is "Osborne" by Adam Osborne that was invented in 1981. In 1984, IBM introduced the computer "IBM portable". In 1986, the first laptop was called "PC Convertible". In 1994, IBM invented the computer "PC Convertible" with integrated CD-ROM[4].

3.4 The Usage of the Computers

Actually the five industries are the biggest purchasers of computer equipment, The sectors are ; financial services, business services, wholesale trade, communications and insurance, these are all in services sector and account for more than %50 of US investment in computers. We may give the growth of the ATM machines as an example of the usage of the computers.

Some believes that the computers are "another piece of capital equipment" in macroeconomic studies, like any capital good, electric motors – substitute machines for workers.

There are many fields that we are using computers from medical to military,

The field "communications" is one of the biggest field about computers usage, computers are able to use stored data, communicate other computers and use the data that are stored in them. A computer can work with other computers and communicate with humans that use other computers. The benefit here is not only one

---

[4] http://www.computerhope.com/issues/ch000984.htm

direction, as you are able to store the data in a computer, you are also able to see the data that computer executes in its field and exports for you. [5]

In medical field there are also many places that we use computers, for office purposes for example, to manage the things, to record the medical history of the patient, to keep the contact details of the doctors and patients, to keep track of appointments[6]. Recently doctors are able to communicate with each other about patients, new inventions and about more. And via web conferencing they are able to take guidance from senior doctors for small and uncomplicated operations. The computers that are in hospital are under the medical field of computer uses. Some devices in hospitals such as X-ray and CT scan which are highly essential for hospitals are also kind of computers. Computers also play important role in conducting some clinical and biological laboratory tests.

In military field, computers are must, and development in technology and computers decides the power of an army. [7] Now, it's even possible to attack somewhere from thousands of miles away which has lest cost and makes much more efficient use of resources and is more effective. Some explosives nowadays are working without the help of people they are destroying the targets as they are ordered-programmed. Communication and keeping the secret data in military is also easy with computers by the help of strong encryption techniques. But also we need to keep in mind that decryption is also possible with computers, as in British code breakers were using computers to decrypt German messages in the Second World War.

---

[5] http://www.dcs.ed.ac.uk/home/gordon/c-in-c/book.pdf
[6] http://www.buzzle.com/articles/use-of-computers-in-the-medical-field.html
[7] http://tracyreed.org/Writings/military/

Simulations were invented at the same date of computer games invented. Since people wanted to get into computer games much more than simulations, the sector did not grow as much as the growth of the computer games, but in military way, sector was always developing, since the simulation is the easy way for military to train soldiers, and it does not result in any lose while training. Simulation is the only way to train soldiers especially for Air Force nowadays. Military is using simulation in different ways though.

We also use computers in daily life, the heater we use at homes is kind of computer, the mp3 players we carry has its own small operating system. We use computers for storage purposes too, now it's possible to carry a big library into 1 centimeter square flash disk and may read any book inside via a computer. And there a lot of other places that we use the help of the computers and technology.

3.5 The Country of Worldwide Technology Products: U.S.

As we mentioned the first business computer "UNIVAC" built by John Eckert, in 1946 in U.S., Eckert started his own company which is Electronic Control Company. They sold one to the Cencus Bureu for $300 000. This selling noticed by other manufacturers included IBM headed by Thomas Watson, Sir, and Then IBM offered courses for users and field engineering teams for service. When IBM noticed the size of this sector, they suddenly realized the lack of the operating system. So they tried to make an agreement with Gary Kildall of Data Research, he denied them, so IBM went with Microsoft for MS-DOS and the IT technology sector started according to the Jeremy Greenwood (February 1999).

It took much time for them to enter in the stock market because the process was going slow when the IT was young. The biggest player in the IT sector is Microsoft nowadays which was formed in 1976 by Paul Allen and Bill Gates under the name of "Micro-Soft". But they went public in 1986. This is the story of the IT sector in US before it affect the world.

By the second half of the 1990s, gains in the new technology caused the fastest growing companies in history of the US. And they become the leaders of the sector in the world.

3.6 The Technology in Developed Countries

Due to the development of the technology, it became the main driver of economic growth in the 1990s in US. The new technology caused the firms to grow faster that US stock markets has not seen before. The smallest IT contribution occurred in Japan and Germany in 1990s.

The growth contribution from IT capital in all European countries are smaller than US, the highest contributions are in UK, Netherlands, Ireland and Sweden.

But this scenario did not continue for a long time; the economic growth of IT sector has stopped and started to lose its power by the help of NASDAQ fell in 2000. Because of this NASDAQ failure 784 IT companies went out of the business, more than 140,000 workers in the IT industry in the US lost their jobs in 2000. One of the biggest companies YAHOO's stock price decreased $US 240 to $US 17 on march 2001, and earnings of $US300 Million became almost nothing.

Currently, USA is the leader of the use of IT and is the one which dominates the sector. According to the results of the research of Zhua Qiao that was conducted in 2006, US stock markets dominate other stock markets except Canada.

Sweden is another country which is also a leader of use of IT. If we look at the percentage of households with the Internet access in 2000, Sweden was the second place in EU. Around the year of 2000, there are some other interesting results, such as the gap between EU and US growth. Some believe that the growth gap is the technology gap which is between US and EU.

Chapter 4

TECHNOLOGY SECTOR IN ISTANBUL STOCK MARKET

4.1 Istanbul Stock Market

In Turkey in Istanbul, Stock Market (Turkish: Istanbul Menkul Kıymetler Borsası, IMKB) is the only corporation for exchanging securities since 1986. It provides the exchange equities, bonds, bills, revenue-sharing certificates, private sector bonds, foreign securities, real estate certificates and international securities. [8] Istanbul Stock Market is highly volatile market and is characterized by short term speculative trading.

---

[8] http://en.wikipedia.org/wiki/Istanbul_Stock_Exchange

Table 4.1: Acceptance of Istanbul Stock Market

No.	Accepted By and Additional Information
1	US securities and Exchange Commission (SEC) **(ISE was defined as "investable foreign stock market" by SEC)**
2	Japan Securities Dealers Association(JSDA) **(ISE was defined as "investable foreign stock market for Japanese investors")**
3	Austria the Ministry of Finance **(ISE was declared as "Investable Steady Stock Market for Austrian Mutual Funds")**

Table 4.2: Memberships of Istanbul Stock Market

No.	Abbreviation	Member Of
1	WFE	The World Federation of Exchanges
2	FEAS	Federation of Euro-Asian Stock Exchanges (ISE is founder and president of FEAS that was found in 1995)
3	FESE	Federation of European Securities Exchanges
4	ICMA	International Capital Market Association
5	ECMI	European Capital Markets Institute
6	IOSCO	International Organizations of Securities Commissions

There are Totally 28 sectors competing in Istanbul Stock Exchange

Table 4.3: The Sectors Competing in Istanbul Stock Market

No:	Sector Name	No:	Sector Name
1	Banking	15	Automotive
2	Insurance	16	Automobile Material
3	Other Financial	17	Retail Goods
4	Construction	18	Oil Distribution
5	Cement	19	Chemical
6	Durables	20	Textile
7	Iron and Steel	21	Technology
8	Energy	22	Tourism
9	Foods and Drinks	23	Transportation
10	Medical	24	Real Investment Trust
11	Holdings	25	Mutual Fund
12	Paper/Packing	26	Special Account Period
13	Media	27	Developing Firms
14	Mobile Communication	28	Other

4.2 Technology Sector in Istanbul Stock Market

In this study, there were totally 11 firms under the technology sectors.

Table 4.4: The Companies in Technology Sector in Istanbul Stock Market
(The order is according to the date they went to public)

No.	Stock Code	Company Name	Went to Public	Paid in Capital*	Registered Capital*
1	ALCTL	Alcatel Lucent Teletaş	22.03.1988	38,700,772	50,000,000
2	ASELS	Aselsan	01.08.1990	235,224,000	500,000,000
3	NETAS	Netas Telecom	03.03.1993	6,486,480	300,000,000
4	LOGO	Logo Software	01.05.2000	25,000,000	**
5	ESCOM	Escort Technology	13.07.2000	15,335,000	50,000,000
6	LINK	Link Computer	19.10.2000	5,500,000	**
7	ARENA	Arena Computer	26.10.2000	32,000,000	50,000,000
8	INDES	Indeks Computer	17.06.2004	56,000,000	75,000,000
9	PKART	Plastkart	11.08.2004	22,750,000	**
10	ANELT	Anel Telekom	02.09.2005	50,000,000	150,000,000
11	KRONT	Kron Telecom	16.05.2011	14,268,513	15,000,000

*Currency is Turkish Liras,** Company does not share its registered capital*

The first firm that entered in the sector is Alcatel Lucent Teletas in 1988 followed by

Aselsan in 1990, Netas Telecom in 1993. 12 years, until 2012 there are 3 firms

competing in Istanbul Stock market. In 2000, the Internet era has started in Turkey

and in one year 4 firms have entered in the sector. These firms are as follows: Logo Software (1/5/2000) Escort Technology (13/7/2000), Link Computer (19/10/2000) then 4 years later Indeks Computer in 2004, Plastkart(11.08.2004) and Anel Telekom in 2005,and as the last one Kron Telecom (16.05.2011) in 2011.

4.3 Technology Companies in Details

Here we analyze the 11 technology company in details;

4.3.1 Alcatel Lucent Teletas

Table 4.5 Alcatel Lucent Teletas Stock Information

Company Info		
Stock Code	ALCTL	
Paid in Capital	38.700.772 TL	
Established	08.09.1983	
Went To Public	22.03.1988	

Ownership		
Alcatel Lucent	25,155,502 TL	%65
Public Shares	13,545,270 TL	%35

Partnership		
Talt Joint Venture	*	%39,38

Table 4.6: Alcatel Lucent Teletas Capital Structure (Shows that Alcatel Lucent is equity based.)

Capital Structure of Alcatel Lucent
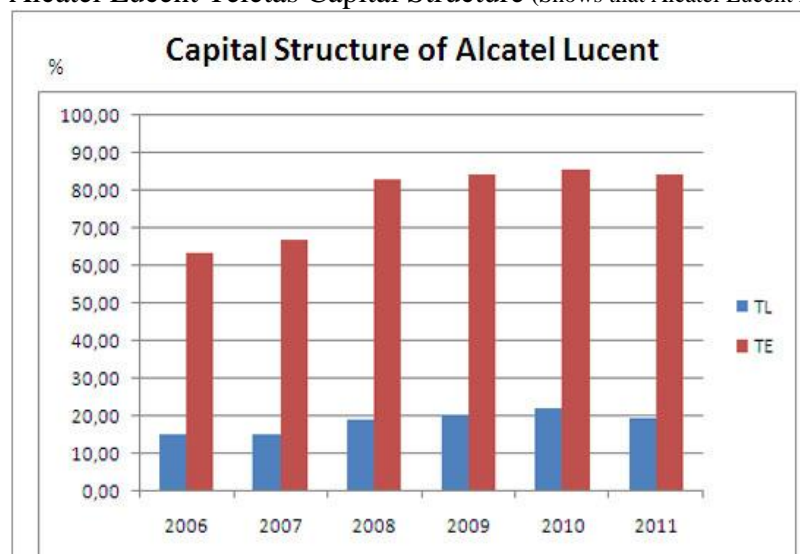
It is the first technology firm that entered the Istanbul Stock Market. It deals with the production of the professional electronic telecommunication devices, building up, and trading them.[9]

4.3.2 ASELSAN

Table 4.7: Aselsan Stock Information[10]

Company Info	
Stock Code	ASELS
Paid in Capital	235.224.000 TL
Established	20.11.1975
Went To Public	08.01.1990

Ownership		
Turkish Armed Forces	198,958,487 TL	%84,58
Public Shares	35,993,667 TL	%15,30
Other Partners	271,846 TL	%0,12

Partnership		
Aselsan Baku Company	*	%100,00
Mikroeletronik R&D Designing & Trading Co.	*	%85,00
Aselsan Kazakhstan Engineering LLP	*	%49,00
IGG Aselsan Integrated Systems LLC	*	%49,00
Roketsan Roket Company	*	%15,00
Aspilsan Company	*	%1,00
Airport workings and Aviation Company	*	%0,00

Table 4.8: Capital Structure of Aselsan Company (It can be seen in the table 4.8 that Aselsan is both debt and equity based.)

[9] http://www.alcatel-lucent.com/
[10] http://www.denizyatirim.com/
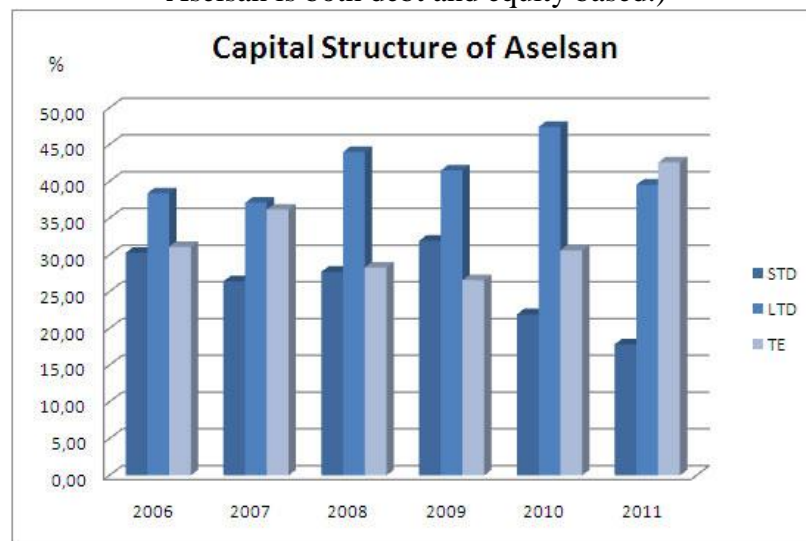
The company was set up in 1975 to supply the telecommunication devices to Turkish Armed Forces and it is the leading company that produces modern electronic systems for military and industrial systems.

Company has four subsectors which are:

1. Communications Devices Division (HBT),

2. Defense Systems Division (SST)

3. Radar, Electronic Warfare and Intelligence Systems Division (REHIS)

4. Microelectronics, Guidance and Electro-Optics Division (MGEO)

In electronic production, the company is able to produce surface mount technology, printed circuit boards (multilayer and flexible), mechanical productions, mold productions, system integration.

Regarding the communication devices, company is able to produce military and professional communication systems like Radar, Electronic Warfare. It is using high technology engineering in all sectors, every product is suitable with ISO-9001 by using computer aided design (CAD), Computer aided engineering (CAE) and computer aided manufacturing (CAM) technologies. And company is also member of TUMAKUDER and IPC.[11]

---

[11] http://www.aselsan.com.tr/

4.3.3 NETAS TELECOM

Table 4.9: Netas Telecom Stock Information [12]

Company Info	
Stock Code	NETAS
Paid in Capital	6,486,480 TL
Esablished	31.03.1967
Went To Public	03.03.1993

Ownership		
OEP RHEA Turkey Tech B.V	3,446,297 TL	%53,00
Public Shares	2,067,211 TL	%32,00
Turkish Armed Forces Foundation	972,972 TL	%16,00

Partnership		
Probil Bilgi İşlem Destek ve Danışmanlık Sanayi ve Ticaret A.Ş	11,000, 000 TL	%100,00

Table 4.10: Capital Structure of Netas Telecom (Shows that there is less usage of short term debt for Netas Telecom)
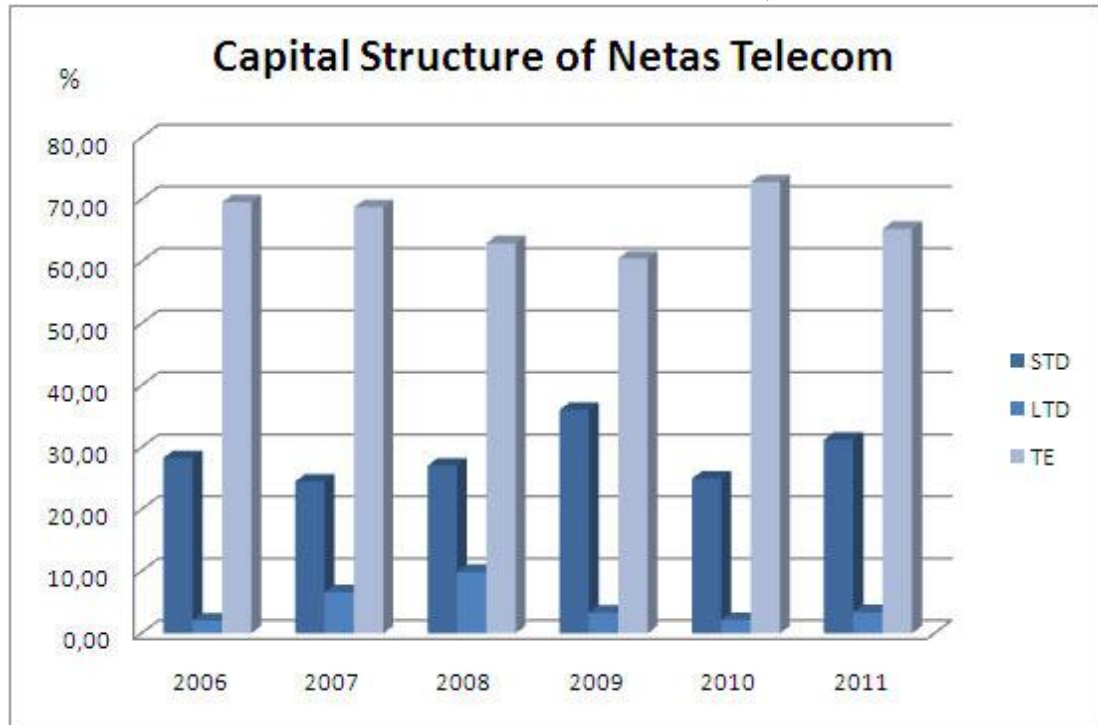
The company is running on a field of Information and Communications

Technologies (ICT) and it is the largest information and telecommunication solutions

---

[12] http://www.denizyatirim.com/

company in Turkey. The customers of the company are Telco providers to public and private enterprises in local and international markets, NETAS also helps the modernization of the Turkish Armed Forces about defense Communication networks since Turkish Armed Forces holds %15 of the shares of the company. NETAS has announced that they became the "Software Export Champion" over the 500 other Turkish companies in the sector where the product size is three times more in the last four years. According to their reports, company is still developing software solutions for more than 160 global operators.

Netas's majority shareholders are OEP (One Equity Partners) RHEA Turkey Tech B.V with 53,13% and The Turkish Armed Forces Foundation with 15%. The remaining shares of 31,87% are traded on the Istanbul Stock Exchange (ISE).[13]

4.3.4 LOGO Software

Table 4.11: Logo Software Stock Information[14]

Company Info		
Stock Code	LOGO	
Paid in Capital	25,000,000 TL	
Established	11.03.1986	
Went To Public	01.05.2000	

Ownership		
Logo Investment Holding Co.	17,597,524 TL	%70,39
Public Shares	7,402,476 TL	%29,61

Partnership		
Logo Business Software GMBH	134,739 TL	%100,00
Coretech Information Technology Co.	999,800 TL	%99,98
Logobi Software Firm	49,997 TL	%60,00

---

[13] http://www.netas.com.tr/
[14] http://www.denizyatirim.com/

Table 4.12: Capital Structure of Logo Software (shows that the company is equity based)
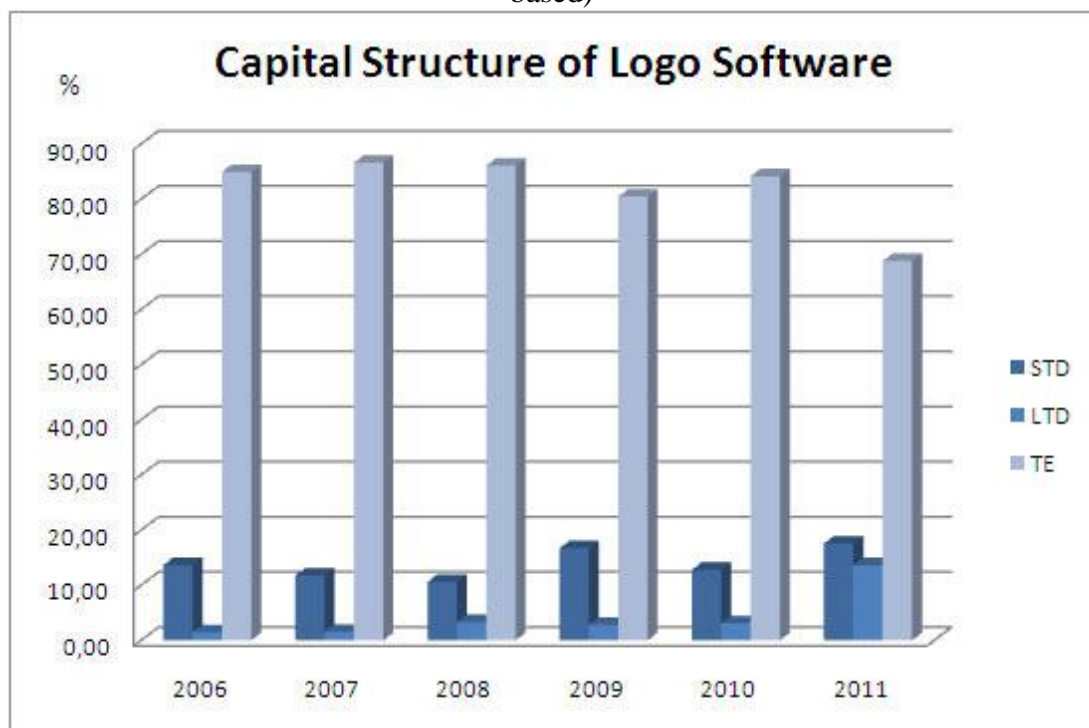
According to their declaration, they are the biggest independent software firm in Turkey. They started to develop engineering software for the personal computers in 1984 and today they are working on information technology sector and one of the biggest firms in Turkey.

They became known in 2000 and they are the first 'information' company which went to public. They have more than 1,300,000 users in 170,000 firms in the world and in the Turkey. They are running in 32 different countries totally.

According to the research of Turkish time R&D

-12th in the Turkey, 1st in the sector (TurkishTime, August 2011)

-14th in the Turkey, 1st in the sector (TurkishTime, June 2010)

-13th in the Turkey, 1st in the sector (TurkishTime, November 2009)

Degrees;

-Unity on Demand - Innovative Open Architecture Solutions from IBM

-8th Technology present from TUBITAK, TUSIAD, TTGV in the year of 2009

Recently two important activities of the company; first, in 2009 they bought the "Coretech" company who is developing SaaS systems that allows the usage of the software products over internet and in 2011, they bought the majority of the shares of the WorldBI firm running in "Business Intelligence " sector.[15]

4.3.5 ESCORT Technology

Table 4.13: Escort Technology Stock Information[16]

Company Info		
Stock Code	ESCOM	
Paid in Capital	15,335,000 TL	
Established	27.05.1994	
Went To Public	13.07.2000	

Ownership		
Halil İbrahim Özer (Individual)	10,441,250 TL	%68,09
Public Shares	4,508,750 TL	%29,40
Ayten Özer (Individual)	354,699 TL	%2,31
Birol Özçelik (Individual)	13,750 TL	% 0,09
Uğur Kumru (Individual)	8,250 TL	%0,00
Ahmet Yakup Boran (Individual)	8,250 TL	%0,00
Hakan Çoruh (Individual)	25 TL	%0,00
S. Nükhet Kocameşe (Individual)	25 TL	%0,00

Partnership		
Escort Donanım Satış ve Pazarlama A.Ş	499,900 TL	%99,00
Bilgera Yazılım A.Ş	444,925	%88,98
T Bilgi Teknolojileri Kaynak ve Hizmet A.Ş	137,500 TL	%55,00
Tnb Bilgisayar ve Görüntü Sistemleri A.Ş	8,999,975 TL	%45,00
Unica Teknoloji Yönetim Danış. ve Tic. A.Ş	20,000 TL	%40,00
Nar Teknoloji A.Ş	200,000 TL	%40,00
Krom Yazılım A.Ş	18,475 TL	%36,95
Innoted Teknoloji A.Ş	449,500 TL	%29,97
Pavo Tasarım Üretim Elektrik A.Ş	525,000	%28,00

---

[15] http://www.logo.com.tr/
[16] http://www.denizyatirim.com/

Table 4.14: Capital Structure of Escort Technology (shows the capital structure of the company)
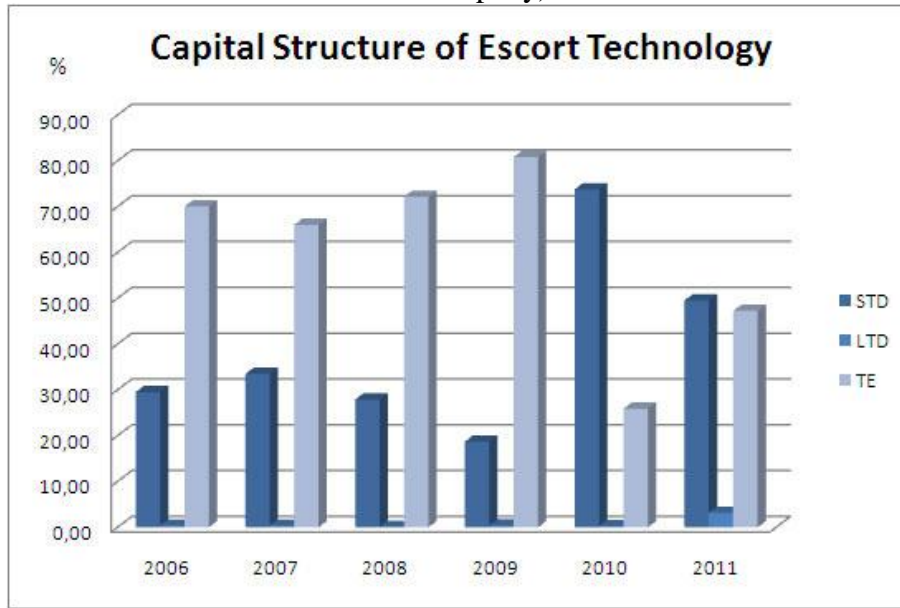
The company was established in 1991 by 4 entrepreneurs and it is the first computer producer in the Turkey. And they were in the projects with the support of World Bank, European Fund, UNESCO, Islamic Development Bank and still playing an active role in the Turkish market.[17]

4.3.6 Link Computer

Table 4.15: Link Computer Stock Information

Company Info	
Stock Code	LINK
Paid in Capital	5,500,000
Established	15.12.1986
Went To Public	19.10.2000

Ownership		
Link Holding	2,058,541 TL	%37,43
Public Shares	1,674,216 TL	%30,44
Murat Kasaroğlu (Individual)	1,140,700 TL	%20,74
Other	626,543 TL	%11,39

Partnership		
Tursoft Information Services	*	*
Bilişim Vakfı	*	*

---

[17] http://www.escort.com.tr/

Table 4.16: Capital Structure of Link Computer[18] (shows that the company is equity based)
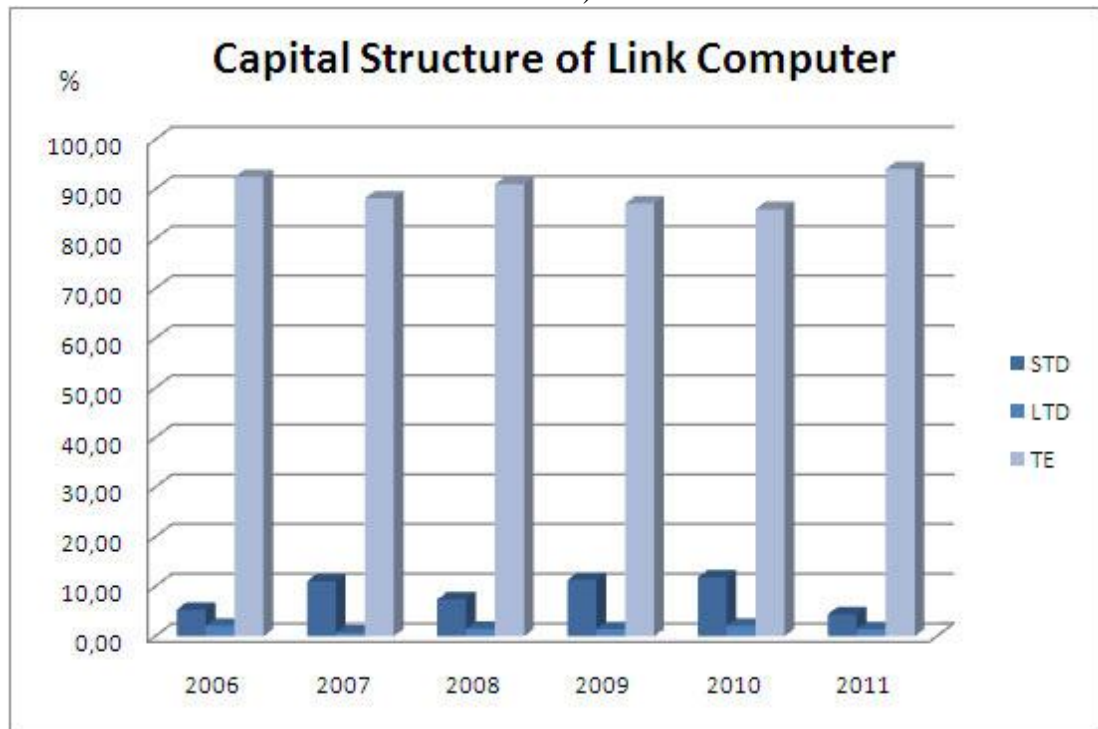
The company was established by several young engineers in the technology sector with the services of marketing, consultancy and education.

The company provides software solutions that allow firms to carry out the process of production, trading, accounting, with the computer system integration. These software products are being used by 64,000 different firms with different sizes with their own licenses. One of the products which are known as "Link Bordro" has the %72 of the usage by the market and is the leader in its field.

The share of the market of the Link computer at the end of 1999 was more than %45 in terms of amount of users and more than %25 in terms of giro portion.

---

[18] http://www.denizyatirim.com/

The software products of Link Company include different topics in it as selling, marketing, purchasing, stock management, stock –store management, current running account, finance, accounting, production, budget planning, human resources, fixed assets tracking, these modules are separated but may integrated to each other.

The company is strategic solution partner of Microsoft, Oracle and Computer Associates, Link Computer distributes its software products via 3 main distributor companies and also provides sales, sales training, and support services with 500 authorized resellers and dealers.[19]

4.3.7 Arena Computer

Table 4.17: Arena Computer Stock Information[20]

Company Info	
Stock Code	ARENA
Paid in Capital	32,000,000 TL
Established	18.09.1991
Went To Public	26.10.2000

Ownership		
Public Shares	16,192,000 TL	%50,60
Redington Turkey Holdings S.A.R.L	15,808,000 TL	%49,40

Partnership		
Arena International FZE	1,000,000 TL	%100,00
Redington Turkey Holdings S.A.R.L	0 TL	%0,00

---

[19] http://www.link.com.tr/
[20] http://www.denizyatirim.com/

Table 4.18: Capital Structure of Arena Computer (Contrary to other companies
Arena Computer tend to short term borrowing)
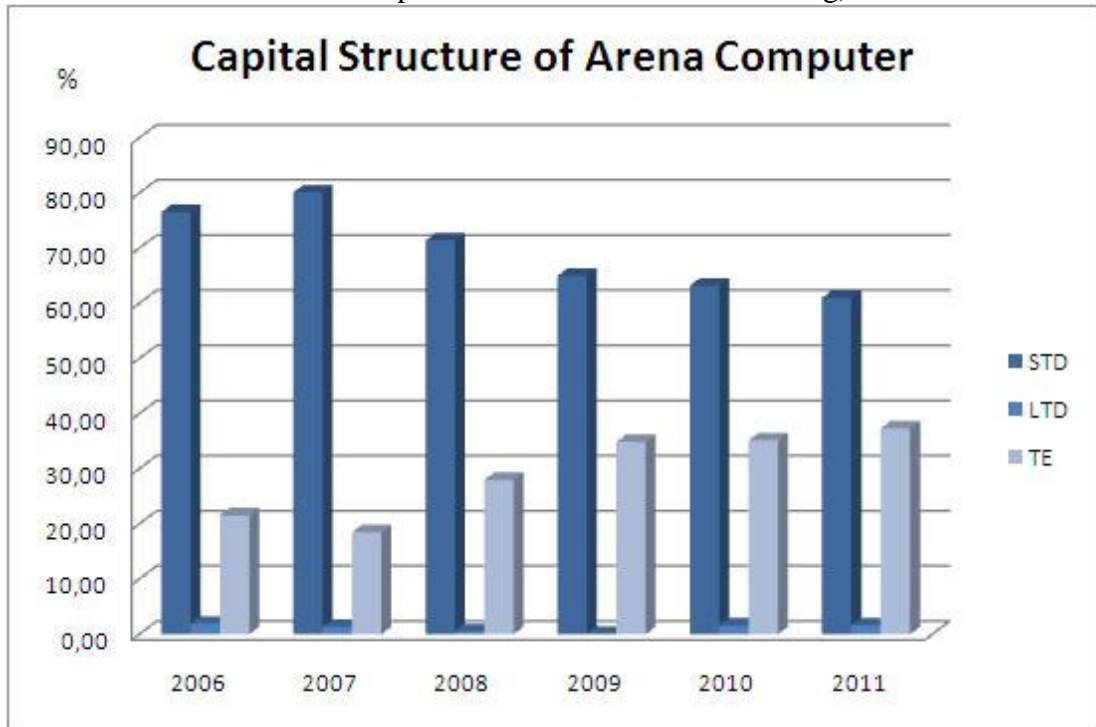
Company is the provider of technological products and working in the field of supply
chain management services. Company is working with over 7,500 resellers and 400
suppliers that are working in the field of IT, telecommunication, and consumer
electronics, retailing and e-tailing. [21]

---

[21] http://www.arena.com.tr/

4.3.8 Indeks Computer

Table 4.19: Indeks Computer Stock Information[22]

Company Info			
Stock Code	INDES		
Paid in Capital	56,000,000 TL		

Ownership			
Pouliadis and Associates S.A		19,911,119 TL	%35,56
Nevres Erol Bilecik (Individual)		18,909,441 TL	%33,77
Public Shares		15,851,986 TL	%28,30
Other		1,327,454 TL	%2,37

Partnership			
Teklos Teknoloji Lojistik Hizmetleri A.Ş		5,000,000 TL	%99,99
Infin Bilgisayar Ticaret A.Ş		50,000 TL	%99,80
Neotech Teknolojik Ürünler Dağ. A.Ş		1,000,000 TL	%80,00
Datagate Bilgisayar Malzemeleri A.Ş		10,000,000 TL	%59,24
Artım Bilişim Çözüm ve Dağıtım A.Ş		1,210,000 TL	%51,00
Neteks İletişim Ürünleri Dağıtım A.Ş		1,100,000 TL	%50,00
Neteks Dış Ticaret Ltd. Şti.		5,000 TL	%0,00
Established	10.07.1989		
Went To Public	17.06.2014		

Table 4.20: Capital Structure of Indeks Computer Highly usage of short term
borrowing of Indeks Computer

---
[22] http://www.denizyatirim.com/

31
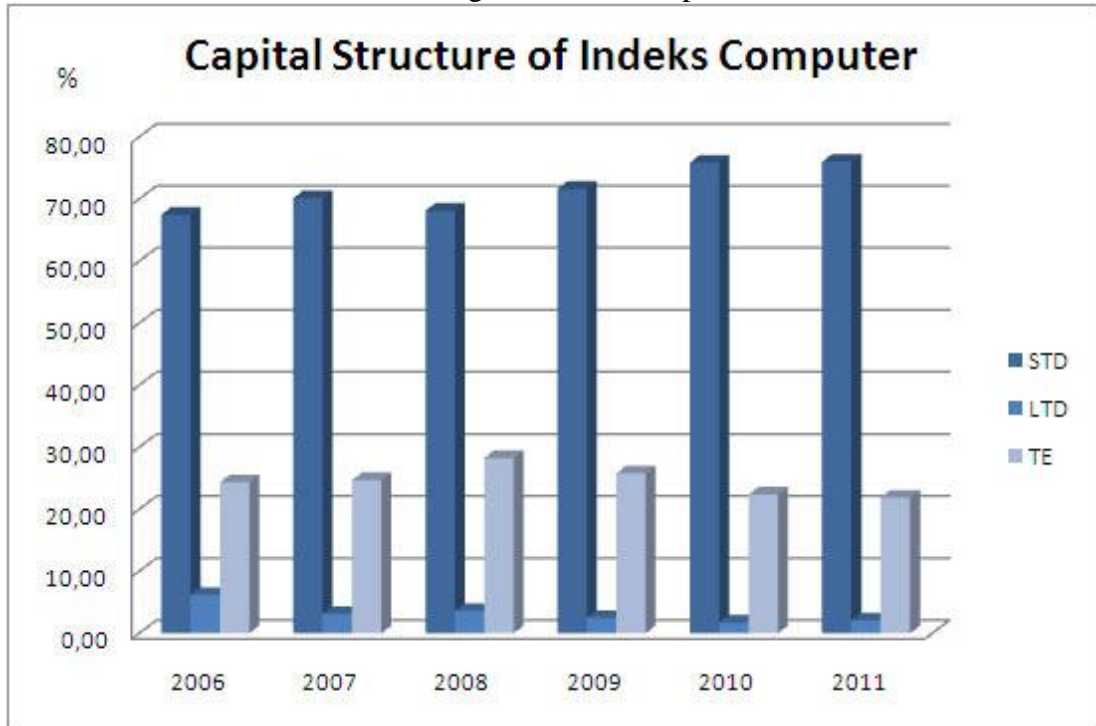
Index computer was established in 1989 to provide the demand of the computers and the computer systems for the firms that they need in a well-organized way. They actually were set up under the name of "provider" since they distribute the computer parts. They provide the parts of more than 200 world brands and they have 382 people working for them where they have more than 7500 partners in the sector. All these results make the company one of the leaders in the sector.

The company is a model of holding company since they have 9 different technological companies under its name. Indeks computer also tends to short term borrowing. Its capital stayed on the same level for 6 years of time (Table 4.20)[23]

4.3.9 Plastkart

Table 4.21: Plastkart Information[24]

Company Info	
Stock Code	PKART
Paid in Capital	22,750,000 TL
Established	13.10.2000
Went To Public	11.08.2004

Ownership		
Public Shares	11,048,500 TL	%49,00
Anel Telekominasyon Elektrik Sistemleri San. A.Ş	5,262,500 TL	%23,00
Bekir Namık Ziyal (Individual)	2,155,625 TL	%9,00
Osman Tarık Ziyal (Individual)	1,990,625 TL	%9,00
Metin Ziyal (Individual)	877,375 TL	%4,00
Melih Cevdet Ziyal (Individual)	877,375 TL	%4,00
Ali Yıldız (Individual)	538,000 TL	%2,00

---

[23] http://www.index.com.tr/
[24] http://www.denizyatirim.com/

Table 4.22: Capital Structure of Plastkart (Company is equity based)
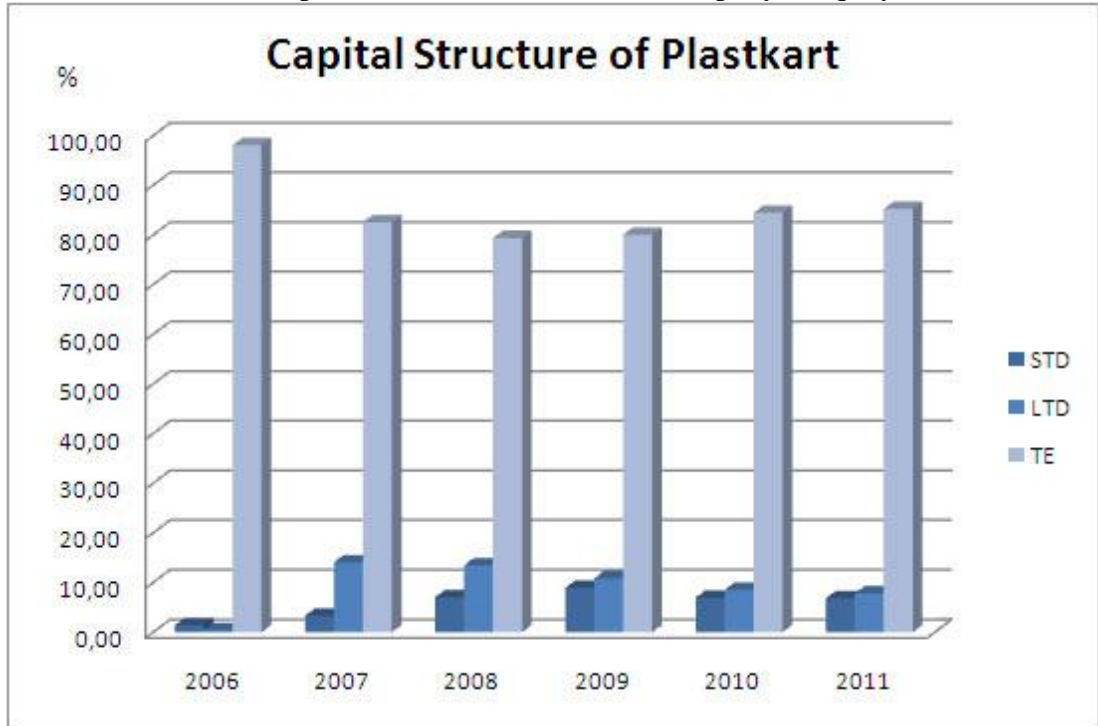
The Company declares themselves as a card manufacturing company with its services including printing, chip embedding, personalization, packaging and delivering of the goods. They are producing cards with different kinds of materials having security features. The company also provides smart card solutions which are processing and storing the data and managing card life cycle in secure way.

The company was set up in Istanbul on 9,000 m² land and found to produce the smart card.

About the stocks, company declares themselves as a company that depends on the rights of its shareholders and they mention that the main target of the company is the

how high is return for the shareholders stating that an in-house success is the value of the company[25].

4.3.10 Anel Computer

Table 4.23: Anel Computer Stock Information[26]

Company Info		
Stock Code	ANELT	
Paid in Capital	50,000,000 TL	
Established	07.01.2003	
Went To Public	02.09.2005	

Ownership		
Public Shares	25,018,560 TL	%50,03
Anel Elektrik Proje Taahhüt ve Ticaret A.Ş	11,171,590 TL	%22,34
Verusaturk Girişim Sermayesi Yatırım ortaklığı a.ş	8,297,941 TL	%16,60
Rıdvan Çelikel (Individual)	4,654,363 TL	%9,31
Others	857,546 TL	%1,72

Partnership		
Anel Elektronik Üretim ve Pazarlama San.	25,937,405 TL	%99,99
AnelYapı Gayrimenkul A.Ş	24,200,000	%55,00
AMS-Aneltech Adi Ortaklığı	2,450 TL	%49,00
Plastikkart Akıllı Kart Ilet. Sis. A.Ş	5,262,500 TL	%23,12
Anel Enerji Elektrik üretim sanayi tic a.ş	125,000 TL	%5,00

---

[25] http://www.plastkart.com.tr/
[26] http://www.denizyatirim.com/

34

Table 4.24: Capital Structure of Anel Telecom (shows the capital structure of the Anel Company)
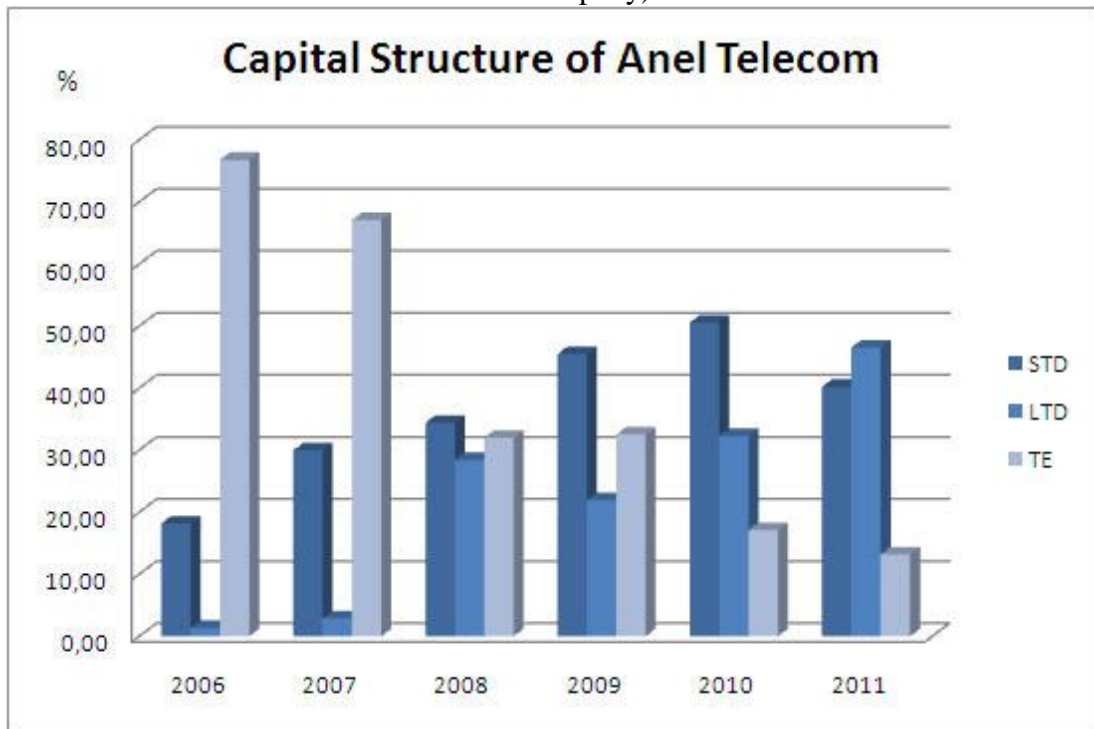
The field of the company is the system integration, fixed and mobile telecommunication, defense, industrial and professional electronics, information technologies and mechatronics in local and international markets.

The company is defining themselves as "the leading systems integrator" by working on the integration of hardware and software systems. Company is also working with the Universities and Research Centers to reach its targets.[27]

---

[27] http://www.aneltech.com/

4.3.11 Kron Telecom

Table 4.25: Kron Telecommunication Stock Information[28]

Company Info	
Stock Code	KRONT
Paid in Capital	14,268,513
Established	03.03.2005
Went To Public	16.05.2011

Ownership		
Lütfi Yenel (Individual)	3,266,587 TL	%40,06
Ahmet Şefik Öngün (Individual)	1,180,635 TL	%14,48
Accelarator Technology Investments	815,350 TL	%10,00

Table 4.26: Capital Structure of Kron Telecommunication (Company is new and only the data is available for the year 2011)
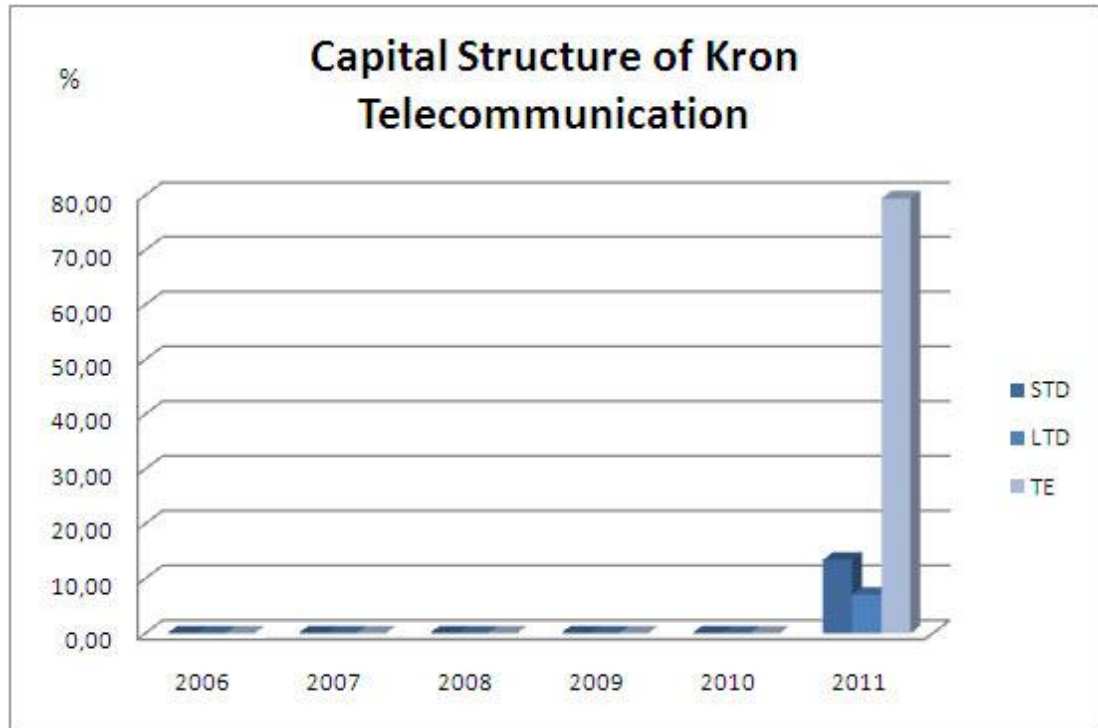
The company was established in 2007 to provide software and hardware solutions for telecommunication sector. Kron's main markets are developing countries such as Turkey, Middle East, APAC (Asia Pacific).

Kron is working with some technological organizations in turkey such as Tubitak and TTgv for various products.[29]

---

[28] http://www.denizyatirim.com/

Chapter 5

DATA AND METHODOLOGY

5.1 Introduction

This section will present the methodology part. The data collected is analyzed in terms of the profitability of the technology sectors.

There are many studies on the financial performance of businesses such as; Wen (2010) carried out a study with two profitability ratios for the banks instead of companies, which are return on assets (ROA) and return on equity (ROE) of 50 banks in three specific years. As a result, bank performance and the ownership were found to be unrelated

According to Gopalakrishna, Wischnevsky and Damanpour (2003), the Internet has an impact on different sectors with different technologies. The Internet and the technology related companies are able to earn and grow faster as brokerage firms. They offer economical prices to the customers than the usual ones.

Aktan B and Teker E (2009) analyzed whether the financial instructions affect its business by the help of deregulations and innovations in technology. According to the results, firms have to be faster about the adoption of the Internet usage.

---

[29] http://www.kron.com.tr/

5.2 Data

The data in this study were collected from the balance sheet and income statements from the annual reports of 11 technology companies. Mostly, the numbers are accurate, but for some companies, there is a difference between the annual reports and 5 year reports. In addition, some companies did not use the same template and labels for their annual reports. In this study, we took the numbers and labels that were written in annual reports, not in 5 year or 2 year reports. Moreover, some companies do not have their annual reports in English. As it was mentioned in the previous sections, the numbers available in English balance sheets and income statements were used. In the case when the numbers which were not available in English, Turkish balance sheet and income statements were used. For the Kron Telecom company, the capital structure and other information was given in previous chapters, but the company was not included in our correlation analysis since company is new and does not have 5 years past.

After collecting the numbers, the ratios were analyzed by the help of SPSS software. Every number was entered one by one to the Microsoft Excel software, then copied to SPSS and executed the data by SPSS.

5. 3 Variables

Two kinds of variables were used to examine the profitability of the 11 companies. These variables are classified as dependent variables and independent variables, 2 dependent and 5 independent totally 7 variables were used in this thesis.

Table 5.1: The variables notation and their measurement

Company Specific	Variables	Measures	Notation
Dependent Variables	Profitability	Return on Assets(ROA) = Net Income / Total Assets	ROA
		Return on Equity(ROE) = Net Income / Total Equity	ROE
	Capital Structure	= Short Term Debt / Total Assets	STD
		= Long Term Debt / Total Assets	LTD
		= Total Equity / Total Assets	TE
Independent Variables	Capital Adequacy	Equity / Total Assets	CR
	Management	Operating Expense/Operating Income	MGMT
	Liquidity	Cash/Total Assets	LQR
	Company Size	Natural Logarithm of Total Assets	LSIZE

5.3.1 Dependent Variables

Return on Asset (ROA) and Return on Equity (ROE) are the two main ratios to calculate the profitability of the companies. Explanation of these ratios are as follows:

Return on Asset (ROA)

Return on asset is a division of the net income of the company by the total asset of the company. It provides the result in terms of percentage and it is an indicator of how much profitable the company is.

Return on Equity (ROE)

Return on equity is also expressed in percentage and is equal to the net income (after tax) of the company over the total equity of the bank. The ratio is important as return on asset.

Short Term Debt (STD)

Short term debt ratio is equal to short term debt divided by total assets. To see the exact percentage, the result was multiplied by hundred in the graphics. This result helps to understand the capital structure of the company.

Long Term Debt (LTD)

To find the long term debt the long term debt was divided by total assets. The result was multiplied by hundred in the graphics to make it easy to read. This ratio helps to comment on company's risk and stability. Since the companies that have long term debt more than others are risky for any economical waves for future.

Total Equity (TE)

Total Equity divided by total assets multiplied by hundred is the total equity percentage ratio and also helps to see the contribution of the shareholders of the company and the capital structure of the company.

5.3.2 Independent Variables

Capital Adequacy

In terms of equation, capital adequacy is capital over total asset also known as capital to risk weightier asset ratio, by this ratio we may get some idea about company's capacity for meeting the liabilities and risks (as operation and capital). The result is in percentage that gives an idea about the company whether the company can protect its depositors in case of any financial failure.

Asset Quality

Total loans over total assets are the equation of the asset quality; this equation is used to see the relation of loans and the portfolio of the assets. This ratio gives information about the usage of assets in terms of loan. Since the loans are one of the main sources for a company's income, and the loans are expected to have positive

affect on the profit of the company. If this ratio is high, the company is more profitable.

Management Efficiency

It is the Interest income over total assets which give an idea about how efficiency the bank is using its assets and liabilities.

Liquidity

Cash over total assets is the liquidity of the bank. If this ratio is high there is enough cash for the company to meet unexpected need in cash, cause of this in case of cash need for any reason, the company is safer if it has this ratio high. Some believe that there is a positive relationship between liquidity and profitability, and some believe that there is negative relationship between liquidity and profitability. But as a result, keeping certain amount of liquid will make the things easy for a company in case of any unexpected situation.

Log Size

Log size can be defined as the total company size. Since the total assets are all in numbers, log size is used to run in the regression analysis.

Methodology

For the Correlation Analysis, as the aim of this study is to analyze the profitability and performance of the technology sector, a correlation analysis is employed that we have collected data from the balance sheet and income statement through their annual financial report. The data is defined as the combination of the cross section and time series data that were carried to excel file.

Financial Ratio Analysis

The method that was developed by Rhoades (1998) was used to see the efficiency of the specific period. The financial data set consist of expense, profitability and balance sheet ratios; the first two are used to analyze the profitability and efficiency between the pre and post-merger periods.

The last one; the balance sheet ratios were used to determine whether major balance sheet items change between the pre and post financial period. The analysis can be estimated as follows;

Table 5.2: Sample Analysis

		Net Income :	854,976 TL
		Total Assets :	6,531,164 TL
PROFITABILITY	ROA	Net Income / Total Assets	0.1309
		Total Equity	5,693,662 TL
	ROE	Net Income / Total Equity	0.1502
CAPITAL STRUCTURE			
		Short Term Debt :	740,870 TL
	STD	Short Term Debt/Total Assets	11.34361
		Long Term Debt	96,632 TL
	LTD	Long Term Debt/Total Assets	1.479552
	TE	Total Equity/ Total Assets	87.17683
Capital Adequacy	CR	Total Equity/ Total Assets	87.17683
		Operating Expense :	1,155,973 TL

		Operating Income :	2,097,805 TL
Management	MGMT	Operating Expense /Operating Income	0.5510
		Cash	1,024,288 TL
Liquidity	LQR	Cash/ Total Assets	0.1568
Company Size	LSIZE	Natural Logarithm of Total Assets	6,531,164 TL

The ratios CR, MGMT, LQR show a company's overall performance and efficiency.

Chapter 6

EMPIRICAL RESULTS

6.1 Correlation Analysis

To find out the relationship between the variables correlation analysis was used to forecast how the chosen variables can affect the profitability indicators such as ROA and ROE. In all of the tables ROA and ROE are positively correlated.

Table 6.1: Correlation Analysis (ROA)

	ROA	CR	LQR	MGMT	LSIZE
ROA	1.000				
CR	0.271*	1.000			
LQR	0.452**	0.437**	1.000		
MGMT	0.235	0.021	0.146	1.000	
LSIZE	-0.035	-0.386**	0.037	-0.248	1.000

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

In this table, Return on Assets (ROA) has a positive relationship with CR and LQR. This means that increase in banks liquidity will cause an increase in banks return on assets as well as the increase in capital of the company. CR ratio has positive relationship with LQR and negative relationship with LSIZE which means that increase in asset size and liquidity will also cause an increase in capital size of the company.

Table 6.2: Correlation Analysis (ROE)

	ROE	CR	LQR	MGMT	LSIZE
ROE	1.000				
CR	-0.330**	1.000			
LQR	0.090	0.437**	1.000		
MGMT	0.061	0.021	0.146	1.000	
LSIZE	0.279*	-0.386**	0.037	-0.248	1.000

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 6.2 shows that Return on Equity has a negative relationship with CR and positive relationship with LSIZE means that increase in the asset size of the company will cause increase in the return, decrease in capital will cause increase in return on equity. Again the CR ratio has a positive relationship with LQR and negative relationship with LSIZE. So the more capital we have the more liquid will be, and increase in capital will result increase in liquidity.

Table 6.3: Correlation Analysis (Short Term Debt)

	STD	CR	LQR	MGMT	LSIZE	ROA	ROE
STD	1.000						
CR	- 0.543**	1.000					
LQR	- 0.482**	0.437**	1.000				
MGMT	0.238	0.021	0.146	1.000			
LSIZE	- 0.353**	- 0.386**	0.037	-0.248	1.000		
ROA	-0.217	0.271*	0.452**	0.235	-0.035	1.000	
ROE	-0.010	- 0.330**	0.090	0.061	0.279*	0.612**	1.000

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The table 6.3 shows that STD has a negative relationship with CR, LQR and LSIZE, which means that increase in short term debt will decrease the asset size of the company and the capital the company will also have lack of liquidity problem. Moreover, the company may face serious liquid problems in case of sudden economic changes in the country. CR has a positive relationship with LQR and ROA and a negative relationship with LSIZE AND ROE. So an increase in capital will cause an increase in the liquidity of the company, the return on equity will be higher then. LQR here has a positive relationship with ROA. The more cash will result more return for the company. LSIZE and ROA have a positive relationship with ROE. So

an increase in assets of the company or return on assets will also increase the return on equity ratio.

Table 6.4: Correlation Analysis (Long Term Debt)

	LTD	CR	LQR	MGMT	LSIZE	ROA	ROE
LTD	1.000						
CR	-0.360**	1.000					
LQR	0.030	0.437**	1.000				
MGMT	-0.259*	0.021	0.146	1.000			
LSIZE	0.090	-0.386**	0.037	-0.248	1.000		
ROA	-0.034	0.271*	0.452**	0.235	-0.035	1.000	
ROE	0.226	-0.330**	0.090	0.061	0.279*	0.612**	1.000

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The table 6.4 shows that LTD has a negative relationship with CR and MGMT, so negative decisions that management take will result the company's long term debts to increase, as the decrease in capital will also cause an increase on long term debts of the company. CR has positively correlated with LQR and ROA and negatively correlated with LSIZE and ROE. Meaning that, as a result of increase in capital will give the company more liquid opportunities that will cause increase in return. And increase in capital means a decrease in return on equity and asset size of the company. LQR has just one correlation which is with ROA positively. Return will be higher if the company has enough liquid sources. LSIZE and ROA are both

correlated positively with ROE. Asset size and return on asset will increase if the return on equity increases.

Chapter 7

CONCLUSION AND SUGGESTIONS

The aim of this study is to investigate the performance of the 11 technology companies in Istanbul Stock Market using the ratios of: CAR, LQR, MGMT, LSIZE with ROA, ROE, STD, LTD between the years of 2005 – 2011, for the 5 years period.

If we compare this study with Saswata (2012) which is on the profitability of the Indian Firms, that might help us to make a conclusion; the same results about the size and the profitability can be seen in our study. In his study, size and the profitability of the firm is positively correlated and in our study size and ROE have also positive relationship which means that as the size of the firm increases, the profitability of the firm also increases. We need to take into consideration that Saswata's study which was on 100 firms, and our was 11 firms competing in the stock market, however there are only 12 companies traded in ISE

Regarding with the empirical results, the correlation analysis results show us that CR has a relationship with of all variables (ROA, ROE, STD, LTD) and has positively correlated with ROA and negatively correlated with ROE, STD and LTD. This means that a result of increase in capital will give the company more liquid opportunities that will cause an increase in return. And increase in capital means a decrease in return on equity because the equity is decreasing. This is what it was

expected about STD and LTD also, when there is an increase in equity in a company's balance sheet, STD and LTD will decrease since the total of the debts and equity is equal to total assets.

LQR is positively correlated with ROA and negatively correlated with STD. This can be interpreted as the return will be higher if the company has enough liquid sources and when a company has enough liquid sources, it does not need any borrowing for short term. So the STD ratio will decrease.

LSIZE has a positive relationship with ROE and a negative relationship with STD. This means that small size companies are using more STD to grow and large size companies do not need this usage of the STD and growth is possible only when there is increase in ROE (the profitability).

As a result, for the capital structure of the companies, the technology companies in Turkish stock market shows a decreasing trend in the usage of the short term debt and an increasing trend in LTD, ROA and ROE. So, recently companies choose the long term borrowing instead of short term borrowings. Generally profitability of the companies is increasing in regard to time.

I would suggest that the technology companies in Istanbul stock market should focus more on producing and R&D process and they should also come to an agreement with the government about the regulations and the policies for the reason that there might be some barriers for them beyond their control such as slow and expensive Internet connections, big amount of taxes on the imported digital equipment and there is a need for change in regulations.

REFERENCES

51

Ahmet Kurtaran, Bünyamin Er (2008). Investment Management and Financial Innovations

Aktan B. and Teker. D. (2009). Changing face of banks and the evaluation of Internet banking in Turkey.

Barry P. Bosworth and Jack E. Triplett (2000). What's new about the economy? IT, Economic growth and productivity

Gopalkrishan. S, Wischnvesky. J, Damanpour. F (2004). A Multi Level Analysis of Factors Influencing the Adoption of Internet Banking

http://www.denizyatirim.com/
http://www.aselsan.com.tr/
http://www.netas.com.tr/
http://www.logo.com.tr/
http://www.lbs.com.tr/
http://www.escort.com.tr/
http://www.link.com.tr/
http://www.arena.com.tr/
http://www.index.com.tr/
http://www.plastkart.com.tr/
http://www.aneltech.com/
http://www.kron.com.tr/

Jeremy Greenwood and Boyan Javonovic (2009). The IT revolution and the stock market

52

Jonathan Zittrain (2006). The Generative Internet

Lars Nyberg (2002). IT in the Financial Sector.

Ofer Vexler (2012). Valuation of Technology, Theory and Practice approaches

Osanu Onodera, Hann Earl Kim (2008). Trade and Innovation in the Korean Information and Communication Technology Sector

Nirvikar Singh (2003). India's information technology sector: What contribution to broader economic development?

Paul Stonemana, Myung Joong Kwon (1996). Technology Adoption and Firm Profitability

Peter Weill, Jeanne W. Ross (2004).It governance on one page

Saswata Chatterjee (2012). The Profitability: Evidence from the Indian Firms

Sinan Aral, Erik Brynjolfsson, Marshall Van Alstyne (2012). Information, Technology and Information Worker Productivity

Starling David Hunter (2003) Information Technology, Organizational

Learning, and the Market Value of the Firm

Stewart Thornhill (2005). Knowledge, Innovation and Firm Performance in High and

Low Technology Regimes

Timo Korkeamaki, Tuomas Takalo (2012). Valuation of Innovation: The case of

Iphone.

Wen, Wen (2010). Ownership structure and bank performance in china; Does

ownership concentration matter?

Zhuo Qiao, Venus Khim-Sen Liew, Wing-Keung Wong (2006). Does the US IT

Stock Market Dominate Other IT Stock Markets: Evidence from Multivariate

GARCH Model

APPENDIX

Table 1 : Correlation Analysis (ROA) by E-Views.

	ROA	LQR	MGMT	LSIZE	CAR
ROA	1.000000				
LQR	0.451665	1.000000			
MGMT	0.234781	0.145661	1.000000		
LSIZE	-0.203066	-0.122117	-0.208861	1.000000	
CR	0.270701	0.437256	0.020561	-0.753947	1.000000

Table 2 : Correlation Analysis (ROE) by E-Views

	ROE	LQR	MGMT	LSIZE	CAR
ROE	1.000000				
LQR	0.089795	1.000000			
MGMT	0.060952	0.145661	1.000000		
LSIZE	0.310334	-0.122117	-0.208861	1.000000	
CAR	-0.330315	0.437256	0.020561	-0.753947	1.000000

Table 3 : Correlation Analysis (ROA) by SSP

Correlations

		ROA	CAR	LQR	MGMT	LSIZE
ROA	Pearson Correlation	1	,271*	,452**	,235	-,035
	Sig. (2-tailed)		,036	,000	,071	,790
	N	60	60	60	60	60
CAR	Pearson Correlation	,271*	1	,437**	,021	-,386**
	Sig. (2-tailed)	,036		,000	,876	,002
	N	60	60	60	60	60
LQR	Pearson Correlation	,452**	,437**	1	,146	,037
	Sig. (2-tailed)	,000	,000		,267	,779
	N	60	60	60	60	60
MGMT	Pearson Correlation	,235	,021	,146	1	-,248
	Sig. (2-tailed)	,071	,876	,267		,056
	N	60	60	60	60	60
LSIZE	Pearson Correlation	-,035	-,386**	,037	-,248	1
	Sig. (2-tailed)	,790	,002	,779	,056	
	N	60	60	60	60	60

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		ROA	CAR	LQR	MGMT	LSIZE
ROA	Pearson Correlation	1	,271[*]	,452[**]	,235	-,035
	Sig. (2-tailed)		,036	,000	,071	,790
	N	60	60	60	60	60
CAR	Pearson Correlation	,271[*]	1	,437[**]	,021	-,386[**]
	Sig. (2-tailed)	,036		,000	,876	,002
	N	60	60	60	60	60
LQR	Pearson Correlation	,452[**]	,437[**]	1	,146	,037
	Sig. (2-tailed)	,000	,000		,267	,779
	N	60	60	60	60	60
MGMT	Pearson Correlation	,235	,021	,146	1	-,248
	Sig. (2-tailed)	,071	,876	,267		,056
	N	60	60	60	60	60
LSIZE	Pearson Correlation	-,035	-,386[**]	,037	-,248	1
	Sig. (2-tailed)	,790	,002	,779	,056	
	N	60	60	60	60	60

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4 : Correlation Analysis (ROE) by SSP

Correlations

		ROE_	CAR	LQR	MGMT	LSIZE
ROE_	Pearson Correlation	1	-,330[**]	,090	,061	,279[*]
	Sig. (2-tailed)		,010	,495	,644	,031
	N	60	60	60	60	60
CAR	Pearson Correlation	-,330[**]	1	,437[**]	,021	-,386[**]
	Sig. (2-tailed)	,010		,000	,876	,002
	N	60	60	60	60	60
LQR	Pearson Correlation	,090	,437[**]	1	,146	,037
	Sig. (2-tailed)	,495	,000		,267	,779
	N	60	60	60	60	60

		STL	CAR	LQR	MGMT	LSIZE
MGMT	Pearson Correlation	,061	,021	,146	1	-,248
	Sig. (2-tailed)	,644	,876	,267		,056
	N	60	60	60	60	60
LSIZE	Pearson Correlation	,279*	-,386**	,037	-,248	1
	Sig. (2-tailed)	,031	,002	,779	,056	
	N	60	60	60	60	60

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 5 : Correlation Analysis (STL) by SSP

Correlations

		STL	CAR	LQR	MGMT	LSIZE	ROA	ROE_
STL	Pearson Correlation	1	-,543**	-,482**	,238	-,353**	-,217	-,010
	Sig. (2-tailed)		,000	,000	,067	,006	,095	,938
	N	60	60	60	60	60	60	60
CAR	Pearson Correlation	-,543**	1	,437**	,021	-,386**	,271*	-,330**
	Sig. (2-tailed)	,000		,000	,876	,002	,036	,010
	N	60	60	60	60	60	60	60
LQR	Pearson Correlation	-,482**	,437**	1	,146	,037	,452**	,090
	Sig. (2-tailed)	,000	,000		,267	,779	,000	,495
	N	60	60	60	60	60	60	60
MGMT	Pearson Correlation	,238	,021	,146	1	-,248	,235	,061
	Sig. (2-tailed)	,067	,876	,267		,056	,071	,644
	N	60	60	60	60	60	60	60
LSIZE	Pearson Correlation	-,353**	-,386**	,037	-,248	1	-,035	,279*
	Sig. (2-tailed)	,006	,002	,779	,056		,790	,031
	N	60	60	60	60	60	60	60
ROA	Pearson Correlation	-,217	,271*	,452**	,235	-,035	1	,612**
	Sig. (2-tailed)	,095	,036	,000	,071	,790		,000
	N	60	60	60	60	60	60	60

ROE_	Pearson Correlation	-,010	-,330**	,090	,061	,279*	,612**	1
	Sig. (2-tailed)	,938	,010	,495	,644	,031	,000	
	N	60	60	60	60	60	60	60

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 6 : Correlation Analysis (LTL) by SSP

Correlations

		LTL	CAR	LQR	MGMT	LSIZE	ROA	ROE_
LTL	Pearson Correlation	1	-,360**	,030	-,259*	,090	-,034	,226
	Sig. (2-tailed)		,005	,822	,046	,495	,798	,083
	N	60	60	60	60	60	60	60
CAR	Pearson Correlation	-,360**	1	,437**	,021	-,386**	,271*	-,330**
	Sig. (2-tailed)	,005		,000	,876	,002	,036	,010
	N	60	60	60	60	60	60	60
LQR	Pearson Correlation	,030	,437**	1	,146	,037	,452**	,090
	Sig. (2-tailed)	,822	,000		,267	,779	,000	,495
	N	60	60	60	60	60	60	60
MGMT	Pearson Correlation	-,259*	,021	,146	1	-,248	,235	,061
	Sig. (2-tailed)	,046	,876	,267		,056	,071	,644
	N	60	60	60	60	60	60	60
LSIZE	Pearson Correlation	,090	-,386**	,037	-,248	1	-,035	,279*
	Sig. (2-tailed)	,495	,002	,779	,056		,790	,031
	N	60	60	60	60	60	60	60
ROA	Pearson Correlation	-,034	,271*	,452**	,235	-,035	1	,612**
	Sig. (2-tailed)	,798	,036	,000	,071	,790		,000
	N	60	60	60	60	60	60	60
ROE_	Pearson Correlation	,226	-,330**	,090	,061	,279*	,612**	1
	Sig. (2-tailed)	,083	,010	,495	,644	,031	,000	
	N	60	60	60	60	60	60	60

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		LTL	CAR	LQR	MGMT	LSIZE	ROA	ROE_
LTL	Pearson Correlation	1	-,360[**]	,030	-,259[*]	,090	-,034	,226
	Sig. (2-tailed)		,005	,822	,046	,495	,798	,083
	N	60	60	60	60	60	60	60
CAR	Pearson Correlation	-,360[**]	1	,437[**]	,021	-,386[**]	,271[*]	-,330[**]
	Sig. (2-tailed)	,005		,000	,876	,002	,036	,010
	N	60	60	60	60	60	60	60
LQR	Pearson Correlation	,030	,437[**]	1	,146	,037	,452[**]	,090
	Sig. (2-tailed)	,822	,000		,267	,779	,000	,495
	N	60	60	60	60	60	60	60
MGMT	Pearson Correlation	-,259[*]	,021	,146	1	-,248	,235	,061
	Sig. (2-tailed)	,046	,876	,267		,056	,071	,644
	N	60	60	60	60	60	60	60
LSIZE	Pearson Correlation	,090	-,386[**]	,037	-,248	1	-,035	,279[*]
	Sig. (2-tailed)	,495	,002	,779	,056		,790	,031
	N	60	60	60	60	60	60	60
ROA	Pearson Correlation	-,034	,271[*]	,452[**]	,235	-,035	1	,612[**]
	Sig. (2-tailed)	,798	,036	,000	,071	,790		,000
	N	60	60	60	60	60	60	60
ROE_	Pearson Correlation	,226	-,330[**]	,090	,061	,279[*]	,612[**]	1
	Sig. (2-tailed)	,083	,010	,495	,644	,031	,000	
	N	60	60	60	60	60	60	60

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 7: Correlation Analysis (TE) by SSP

Correlations

		TER	CAR	LQR	MGMT	LSIZE	ROA	ROE_
TER	Pearson Correlation	1	1,000**	,437**	,021	-,386**	,271*	-,330**
	Sig. (2-tailed)		,000	,000	,876	,002	,036	,010
	N	60	60	60	60	60	60	60
CAR	Pearson Correlation	1,000**	1	,437**	,021	-,386**	,271*	-,330**
	Sig. (2-tailed)	,000		,000	,876	,002	,036	,010
	N	60	60	60	60	60	60	60
LQR	Pearson Correlation	,437**	,437**	1	,146	,037	,452**	,090
	Sig. (2-tailed)	,000	,000		,267	,779	,000	,495
	N	60	60	60	60	60	60	60
MGMT	Pearson Correlation	,021	,021	,146	1	-,248	,235	,061
	Sig. (2-tailed)	,876	,876	,267		,056	,071	,644
	N	60	60	60	60	60	60	60
LSIZE	Pearson Correlation	-,386**	-,386**	,037	-,248	1	-,035	,279*
	Sig. (2-tailed)	,002	,002	,779	,056		,790	,031
	N	60	60	60	60	60	60	60
ROA	Pearson Correlation	,271*	,271*	,452**	,235	-,035	1	,612**
	Sig. (2-tailed)	,036	,036	,000	,071	,790		,000
	N	60	60	60	60	60	60	60
ROE_	Pearson Correlation	-,330**	-,330**	,090	,061	,279*	,612**	1
	Sig. (2-tailed)	,010	,010	,495	,644	,031	,000	
	N	60	60	60	60	60	60	60

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).