T.C.
ISTANBUL AYDIN UNIVERSITY
INSTITUTE OF GRADUATE STUDIES

IMPACT OF ISTANBUL METROPOLITAN MUNICIPALITY'S COMPANIES ON MUNICIPALITY'S FINANCIAL PERFORMANCE

THESIS

Monqeth ALROUSSAN

Department of Business
Business Administration Program

September, 2019

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M.Sc. THESIS
Monqeth ALROUSSAN
(Y1312.130007)

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Thesis Advisor: Assist. Prof. Dr. Nurgün Komşuoğlu YILMAZ

September, 2019

To My Mom, Whom I lost a few days before this research was completed.

DECLARATION

I, **Monqeth ALROUSSAN**, hereby declare that this thesis entitled "**Impact of Istanbul Metropolitan Municipality's Companies on Municipality's Financial Performance**" is entirely my own work and it has been written by me, except where due to reference is made. I declare that it hasn't been submitted in whole or in part in any previous application for a degree or any academic examination towards any qualification.

Monqeth ALROUSSAN

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September 2019 **Monqeth ALROUSSAN**

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ABBREVIATIONS

A.Ş	Anonim Şirketi, "Joint Stock Company"
BELBİM	Elektronik Para ve Ödeme Hizmetleri.
BELTUR	Büyük İstanbul Eğitim Turizm ve Sağlik Yatirimlari İşletme ve Ticaret Anonim Şirketi.
BİT	Belediye İktisadi Teşebbüsleri,"Municipal Economic Enterprises"
BİMTAŞ	Boğaziçi Peyzaj İnşaat Müşavirlik Teknik Hizmetler Sanayi Ticaret Anonim Şirketi.
DEA	Data Envelopment Analysis.
DMUs	Decisions Making Units.
GMA	General Municipal Assembly.
İDO	İstanbul Deniz Otobüsleri Sanayi ve Ticaret A.Ş.
İGDAŞ	İstanbul Gaz Dağıtım Sanayi ve Ticaret Anonim Şirketi.
IMF	International Monetary Fund
İSBAK	İstanbul Bilişim ve Akilli Kent Teknolojileri A.Ş.
İSPARK	İstanbul Otopark İşletmeleri Ticaret Anonim Şirketi.
İSPER	İstanbul Personel Yönetim Anonim Şirketi.
İSTAÇ	İstanbul Çevre Yönetimi Sanayi ve Ticaret Anonim Şirketi.
İSTGÜVEN	İstanbul Güvenlik A.Ş.
İSTTELKOM	İstanbul Elektronik Haberleşme ve Altyapı Hizmetleri San. ve Tic. A.Ş.
İSTON	İstanbul Beton Elemanlari ve Hazir Beton Fabrikalari San. ve Tic. Anonim Şirketi.
İSYÖN	İstanbul Yönetim Yenileme Anonim Şirketi.
IMM	Istanbul Metropolitan Municipality.
KİPTAŞ	İstanbul Konut İmar Plan Sanayi ve Ticaret A.Ş.
TCA	Turkish Commercial Act.
TCC	Turkish Commercial Code.
TÜİK	Türkiye İstatistik Kurumu, "Turkish Statistical Institute".

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ABSTRACT

In 1980, Turkey has started its privatization program and the trade regime has been liberalized to a certain degree. Therefore and according to different laws, local governments and municipalities had founded or privatized business companies in order to sustain themselves without overloading government budget by finding other sources of incomes and to reduce public expenditures.

This study tried to clarify the positive or negative impact of Istanbul municipality's companies on municipality's financial performance. The study has a literature review on Istanbul Metropolitan Municipality and reasons of privatizing or establishing such business companies, it navigates through the municipal economic enterprises with a focus on the line of business of each company and it gives details about their annual revenues and expenses between the years 2012 to 2018. The study dealt with all Istanbul Metropolitan Municipality's companies as one unit, impact of these companies on employment ratio has been discussed too.

To reach for best results, the data have been analyzed by using Data Envelopment Analysis (DEA) system.

Key Words: *Municipality's companies, Local governments, Istanbul Metropolitan Municipality, Municipal Economic Enterprises, Privatization.*

İSTANBUL'DAKİ BÜYÜKŞEHIR BELEDİYE ŞİRKETLERİNİN BELEDİYENİN FİNANSAL PERFORMANSINA ETKİSİ

ÖZET

1980'lerde, Türkiye özelleştirme programına başladı ve ticaret girişimi belirli bir dereceye kadar serbestleştirildi. Hem bu sebepten hem başka kanunlara dayanarak, yerel yönetimler ve belediyeler, başka gelir kaynakları bularak ve kamu harcamalarını azaltarak devlet bütçesine aşırı yüklenmeden kendilerini finanse etmek için ticari şirketler kurmuş veya özelleştirmiştir.

Bu çalışma, İstanbul'daki büyükşehir belediye şirketlerinin, belediyenin finansal performansı üzerindeki olumlu veya olumsuz etkilerini analiz etmeye çalışmıştır. Çalışmada, İstanbul Büyükşehir Belediyesi ve işletme şirketlerinin özelleştirilmesi ve kurulmasının nedenleri hakkında bir literatür taraması yapılmıştır. Ayrıca çalışma, her bir şirketin iş kollarına ayrı ayrı odaklanarak belediye iktisadi teşebbüsleri ve 2012-2018 yılları arasındaki yıllık gelir ve giderler hakkında ayrıntılı bilgi vermektedir. İstanbul Büyükşehir Belediyesi'nin tüm şirketlerinin bir birim olarak ele alındığı çalışmada, bu şirketlerin istihdam oranına etkisi de tartışılmıştır.

En iyi sonuçlara ulaşmak için, veriler Data Envelopment Analysis (DEA) sistemi analiz edilmiştir.

Anahtar Kelimeler: *Belediye Şirketleri, Yerel Yönetim, İstanbul Büyükşehir Belediyesi, Belediye İktisadi Teşebbüsleri, Özelleştirme.*

1. INTRODUCTION

1.1 Preface

Since a lot of time and due to privatization, many of municipalities all over the world like United States of America, Canada, Switzerland, and France had founded business companies to provide services for their citizens and to generate revenues for the their budgets.

Municipalities believe that these companies can enter fields which traditionally dominated by private companies and they can play a fundamental role in building community wealth by creating stable and quality jobs for community members, also by providing goods and services to local residents for lower costs than for-profit providers and by providing goods and services to underserved areas overlooked by for-profit providers and by eliminating bulky public management.

Since 2000s, several legislative regulations have been introduced to ensure fiscal discipline by limiting the borrowing of municipalities. Accordingly, the provisions related to the fiscal rules were enacted with public finance and regulation of debt administration law. (Akduğan and Agun, 2018: p22)

In Turkey, according to article 26 of the metropolitan municipality Law No. 5216 published in the official gazette number 24431 dated on 23.07.2004 and according to the Turkish Commercial Act (TCA) No. 6762 and the provisions of relevant legislation with respect to the authority entitled by the municipal law and according to the methods specified in the related legislation, metropolitan municipalities can establish business companies in the fields of duties and services given to it.

These companies have a separate legal personality and budget, semi-commercial nature but which are under local administration and under the general supervision of local government. Therefore Istanbul Metropolitan Municipality (IMM) and certain metropolitan municipalities in Turkey have founded and privatized many companies in order to increase its income and to decrease depending on the government support.

1.2 Problem of The Study

Although these companies lose money, it seems inevitable that their number will increase more and more (Sayan, 2007: p182). In Istanbul Metropolitan Municipalities (IMM) the number of founded or privatized companies has augmented year after year by as well.

As it appears, privatizing or establishing business companies by municipalities seems to be one of the solutions for the rehabilitation of public sector; this study needs to examine this assumption by comparing and evaluating the outcomes of this implementation by finding the financial performance of IMM's companies and their impact on municipality's financial productivity.

For conducting this study, the data will be collected and prepared from different resources such as companies' annual and financial reports, IMM's annual and financial reports, companies' booklets and companies' official websites in addition to government's official publications.

1.3 Data Analysis

The Data will be analysed through the Data Envelopment Analysis system (DEA), this system is a technique which is relying on mathematical programming methods for estimating various types of efficiency, and it was applied by Michael Farrell in 1957.

DEA is a relatively new "data-oriented" approach for evaluating the performance of a set of entities called Decision – Making Units (DMUs) which convert multiple inputs into multiple outputs. DEA has been used in evaluating the performances of many different kinds of entities engaged in many different kinds of activities in many contexts. It has opened up possibilities for use in cases which have been resistant to other approaches because of the complex and often unknown nature of the relations between the multiple inputs and outputs involved in many of these activities, which are often reported in non – commeasurable units. DEA has also been used to supply new insights into activities and entities that have previously been evaluated by other methods. (Cooper, Seiford, Zhu, 2004: p xi)

Many researches were using this system to find out the efficiency of different DMU's, such as "An analysis on the economic effectiveness of municipalities in Turkey", (Kutlar and Bakirci and Yüksel, 2012: pp80-98) and "Evaluating the efficiency of municipalities in collecting and processing municipal solid waste", (Rogge and Jaeget 2012: pp1968-1978).

1.4 Significance of The Study

One of the underlying reasons to write this study is that with the increasing importance of municipalities and their goals to reach for the fiscal sustainability, there is still lake of knowledge about the business companies affiliated to them. The study is important to fill the gap in the literature by exploring the financial performances of IMM's companies and their financial impact on IMM.

Results of the study would be a guide for some municipalities in Turkey or abroad to imitate such an experiment to improve their economic performance and to decrease their dependent on government's budget.

Actually, there were few researches and studies in English discussed the impact of any of IMM's companies on municipality's financial performance as well as to find a study that analyze the total impacts of all IMM's companies, This is why this study is an essential contribution towards understanding the financial role of the municipality's business companies which will be reflected by default on the municipality's projects, goods and services which are delivered for the citizens of Istanbul.

1.5 Scope of The Study

28 companies founded by IMM will be the scope of this study with a view to reach a comprehensive conclusion regarding their financial impacts. For best results, the study will cover a long period of time reached up to seven years between the years 2012 and 2018.

2. LITERATURE REVIEW

2.1 Definition of Metropolitan Municipality

The word municipality or municipal government is a system of government which recognizes the need for special governmental effort to meet the problems resulting from urbanization. As a result of the increase in the number of person living in cities, local government occupies an important place in society. A municipality in English and American law is any subordinate public authority that is created by central government and is vested with the legal rights of a corporation. The term thus covers not only cities, villages, towns, and boroughs but also counties and special districts.
While the word metropolitan comes from metropolis, which in Greek means mother city, made up of mētēr meaning mother, and polis meaning city. The term applied to urban settlements that include a major city and a number of neighboring communities related to the central city because of trade, culture, economic, and social ties. (Collier's encyclopedia, 1986, v.16 p: 701, 702)

Local governments in Turkey are based on a tripartite system: special provincial administrations, municipalities and villages. In parallel to the extensive reforms in public administration since 2004, major laws have been changed to decrease the power of central government while empowering local governments. (Akıllı, 2014: 682)

In Turkey, there are about 1399 municipalities where 30 are designated as metropolitan municipalities, 51 provincial municipalities, 519 metropolitan district municipalities, 403 district municipalities, 396 small municipalities.
83% of people live in metropolitan municipalities while 17% of people live in the rest of municipalities. (Tüik, 2015, T.D: 19.12.2018).

In article 1 of the municipal law No. 1580 published in the official gazette in 1930, the definition of the municipality: "is a person who is obliged to regulate the joint and civil needs of the municipality and its habitants and to regulate their local needs". (Official gazette, No. 1471, 1930: p8821)

2.2 Duties and Responsibilities of Municipalities

The law gave municipalities many duties and responsibilities in order to perform the services expected from them.

Law No. 5393 published in the official gazette in 13.07.2005 has introduced a comprehensive regulation on the authorities, duties and responsibilities of municipalities and the privileges granted to municipal administrations such as urban infrastructure and reconstruction, water and sewage, transportation; geographic and urban information systems; environment and environmental health, cleaning and solid waste; police, fire, emergency, rescue and ambulance; Urban traffic; burials and cemeteries; afforestation, parks and green areas; housing; culture and arts, tourism and promotion, youth and sports; social work and assistance, marriage, occupation and skills; perform or have the services of economic and trade development. In addition, Metropolitan municipalities and municipalities with more than 50,000 inhabitants can open protection houses for women and children. (Official gazette, No. 25874, 13.07.2005)

2.3 Privileges Granted to Municipalities

Article 15 of the municipal law No. 5393 has explained the authorities and privileges given to municipalities as follows:

1. To engage in all kinds of activities and initiatives to meet the local common needs of the residents.
2. To issue regulations within the framework of the authority given to the municipality by law, to impose and implement municipal bans, to impose penalties specified in laws.
3. To give permission or license in accordance with the law regarding the activities of real and legal person.
4. To carry out the levies, accruals and collections of taxes, duties, fees, contributions and participation shares of the municipality in accordance with special laws; to collect natural gas, water, wastewater and service receivables those are required to be collected in accordance with the provisions of private law.
5. To supply industrial water and to ensure that waste water and rain water are drained correctly; to establish and operate the necessary facilities for operating spring waters.
6. To establish, install, operate all kinds of public transportation systems including buses, marine and water transportation vehicles, tunnels and rail systems.
7. To carry out all services related to collecting, transporting, separating, recovering, eliminating and storage of solid wastes.
8. To acquire, expropriate, sell, rent or lease, exchange, allocate, and establish limited real rights on the municipal and adjacent areas within the scope of local joint services.

9. To borrow and accept donations.
10. To establish and operate wholesalers and retailers, bus terminals, fairgrounds, slaughterhouses, yachts and piers or to allow to be opened by real and legal person.
11. To decide on the settlement of disputes other than taxes, duties and charges.
12. To license and control non-governmental establishments and public places of rest and entertainment.
13. To develop and recording the economy and trade in the town, to prohibit unauthorized salespersons from unauthorized sales.
14. To set standards for billboards and promotional signs.
15. To control non-commercial workplaces, entertainment places, other workplaces that have an impact on public health and the environment in certain parts of the city; excavation soil and debris dump areas; liquefied petroleum gas (LPG) storage areas; identifying materials, wood, coal and scrap storage areas and sales locations; to take necessary measures to prevent environmental pollution in these areas and places and transportations.
16. To determine the number of taxis, ticket fares and timetables, time and routes of all kinds of services and public transportation vehicles operated on land, sea, water and railway; identifying and operating, or renting car parking spaces on stops, highways, roads, streets, squares and to carry out all the work required by the traffic regulation. (Official gazette, law No. 5393, 13.07.2005)

2.4 Metropolitan Municipalities in Turkey

In Turkey, There are 81 provinces; among them 30 are designated metropolitan municipalities (Büyükşehir Belediyeleri). Metropolitan municipalities are subdivided into districts (ilçe), where each district includes a corresponding district municipality, which is a second tier municipality.

The first metropolitan municipalities were established in 1984, these were the three most populous cities in Turkey; Istanbul, Ankara and Izmir. In each metropolitan municipality a number of second level municipalities (ilçe) were established.

In 1986 Adana and in 1987 three new metropolitan municipalities were established in Bursa, Gaziantep and Konya. One year later (1988) the total number was increased to eight with the addition of Kayseri.

In 1993, seven new metropolitan municipalities were established in Antalya, Diyarbakır, Erzurum, Eskişehir, Mersin, Kocaeli and Samsun. Following to the earthquake of 1999, Sakarya was also declared a metropolitan municipality in the year 2000.

Before 2004, only the urban centers with a population more than 750,000 were declared metropolitan cities. However, in 2004, the concept of metropolitan municipality was redefined in Istanbul and Kocaeli, where from then on metropolitan municipality borders would overlap with provincial borders.

In 2012, this year was extended to other metropolitan municipalities. Thus, all provinces with a population in excess of 750,000 were declared metropolitan municipalities and accordingly the number of metropolitan municipalities has sharply increased. The following 13 cities became metropolitan municipalities: Aydın, Balıkesir, Denizli, Hatay, Kahramanmaraş, Malatya, Manisa, Mardin, Muğla, Tekirdağ, Trabzon, Şanliurfa and Van.

Later, with the addition of Ordu, the total number of the metropolitan municipalities increased to 30.

Figure 2.1: Metropolitan Cities in Turkey
(**Source**: emlakdanismanlari.com, T.D: 27.08.2018)

Table 2.1: Names of Cities in Turkey and the Date of Becoming Metropolitan Municipalities.

No	City	Date of becoming a Metropolitan City	No	City	Date of becoming a Metropolitan City
1.	Ankara	1984	16.	Sakarya	2000
2.	İstanbul	1984	17.	Aydın	2012
3.	İzmir	1984	18.	Balıkesir	2012
4.	Adana	1986	19.	Denizli	2012
5.	Bursa	1987	20.	Hatay	2012
6.	Gaziantep	1987	21.	Malatya	2012
7.	Konya	1987	22.	Manisa	2012
8.	Kayseri	1988	23.	Kahramanmaraş	2012
9.	Antalya	1993	24.	Mardin	2012
10.	Diyarbakır	1993	25.	Muğla	2012
11.	Erzurum	1993	26.	Tekirdağ	2012
12.	Eskişehir	1993	27.	Trabzon	2012
13.	Mersin	1993	28.	Şanlıurfa	2012
14.	Kocaeli	1993	29.	Van	2012
15.	Samsun	1993	30.	Ordu	2012

(**Source**: www.ibb.istanbul, T.D: 05.08.2018)

2.5 History of Local Governance in Istanbul

2.5.1 The reforms era (tanzimat dönemi)

During the reform era in the Ottoman Empire, the first modern municipality was established in 1839, at that time main administrative reforms have been launched. The Qadi has been assigned to control not only the judicial authority but also he was representing the imperial government by making control over a territory with the assistance of different seniors like chief of constabularies, imam, chief architect.

This system became incapable after the industrial revolution; it could not meet the needs of the local government and therefore a new system was launched on August 16, 1855 and it was named Şehremaneti, the new system was composed of two bodies; the "Şehremini" which means "Mayor" in ottoman Turkish, and the "City Assembly", both they were led by an appointed chief executive.
(ibb.istanbul, T.D: 05.08.2018)

2.5.2 The constitutional monarchy I-II

In 1876, the Meclis-I Mebusan (Imperial General Assembly) worked to have a comprehensive public acts to administrate Istanbul which was the imperial capital in addition to other provinces.

The new act made municipalities legal entities; it divided Istanbul to 20 municipal departments in addition to the Cemiyet-I Umumiye-i Belediye (General Municipal Assembly "GMA") and it was supposed to have elections for the city councilors but that was hard to do because of the war against Russia in 1877-1878 and it has been postponed till the year 1908 where the local elections were held and GMA convened for the first time.

In 1912, a new law was passed and it called the "Provisional Act on Istanbul Municipal Organization". The law re-organized the Şehremaneti as a centralized body. The municipal department model was abolished, and the Şehremaneti was transformed into a single municipal department consisting of nine bureaus.

The executive council replaced the GMA, and a director was assigned to each bureau, the organic affiliation of the GMA members with the municipalities was revoked, and the GMA membership was extended to every member of civil society through electoral representation.

After the declaration of Meşrutiyet II (restoration of the constitutional monarchy), Istanbul was turned into a province, where the governor's powers were also transferred to the Şehremini (Mayor) in addition to all his responsibilities for municipal services. (ibb.istanbul, T.D: 05.08.2018)

2.5.3 The republic era

Throughout the first years of the republic, the local government structure in Istanbul set out by the laws promulgated in 1877 and 1912, remained in effect with slight alterations in terminology. For example, Sehremaneti was changed to "belediye" (municipality) and Sehreminin to "belediye reisi" (city mayor).

Istanbul was divided into ten district municipalities; the year 1930 marked the introduction of a new local administration act which merged municipalities and special provincial administrations. Under the new law, the city leader was commissioned as both the governor and the mayor of Istanbul.

The GMA and the Meclis-i Umumiye-i Vilayet (General Provincial Assembly), which was part of special provincial structure at that time, were replaced by a new body embracing the duties of both of the previous entities. This new entity was called "Istanbul General Assembly" and it was consisted of 68 chairs.

The local elections of October 14, 1930 were followed by the inauguration of the General Assembly on November 6, 1930 by Muhittin ÜSTÜNDAĞ, the chairman of the assembly and governor of Istanbul.

The municipal and provincial assembly's jurisdiction was extended to encompass all those formerly belonging to the municipality and special administration.
In 1954, the municipality and the governorate were detached by public act No. 6349, yet the law could not be put into practice until March 1957. Municipal department offices were opened in the districts of Beyoğlu, Beşiktaş, Eminönü, Sarıyer, Eyüp, Bakırköy, Adalar, Kadiköy, Şişli, Üsküdar and Beykoz. However, until 1958 the governor was in charge of both municipal and province administration. These two posts were separated from each other during Kemal AYGÜN's term in office.

The coup d'état of May 27, 1960 led to the dissolution of all municipal and provincial administrations, the military government removed all of the incumbent mayors from their offices and replaced them with the newly appointed. A new legislation was promulgated on July 27, 1963 which set forth new regulations for local elections. Under this new law, mayors were to be elected with relative majority of votes cast in direct and equal elections based on secret ballots under universal suffrage.
In addition to this, the provision that imposed mayors to obtain either the governor or the president's approval was abrogated. Eventually, Haşim IŞCAN became the first elected mayor of Istanbul in the local elections on November 17, 1963.

With the coup d'état on September 12, 1980 the municipal structure of Istanbul was fundamentally changed. The mayors were removed from their offices and the municipal assemblies were dissolved throughout Turkey as well.
On December 4, 1981 the military government enacted public act no. 2591 on "The agglomeration of the settlements around metropolitan areas to the metropolitan municipalities". The municipalities and villages around the metropolises with populations over 300,000 were turned into suburbs or neighborhoods and were united with metropolitan municipalities. Between the years of 1980 and 1984, the military government appointed the mayors of Istanbul.
Article 127 of the constitution of 1982 was amended in order to allow specially tailored local administration structures for large settlement areas, decree law no. 3030 concerning "the administration of metropolitan municipalities" entered into force on June 27, 1984. The new legislation created two-tiered municipal structures in Istanbul, Ankara and Izmir.

Later on, more cities were designated as metropolitan areas, and the number of metropolitan municipalities thereby increased to 16. After being in effect almost for twenty years, decree law no. 3030 was replaced by public act no. 5216, which was drafted in the course of substantial reforms in the local government system and was adopted on July 10, 2004. With this law, Istanbul metropolitan municipality's jurisdiction was enlarged to cover all the area within the provincial limits. Furthermore, the number of the district municipalities rose to 32 while the number of first-level municipalities became 41.

Finally, under public act no. 5747 dated March 6, 2008 more quarters were designated as districts, whereas the district of Eminönü became a quarter within the jurisdiction of the district of Fatih. Therefore, the number of district municipalities in Istanbul rose to 39, whereas the first-level municipalities were abolished. (ibb.istanbul, T.D: 05.08.2018)

Table 2.2: Districts of Istanbul.

1.	Adalar.	21.	Gaziosmanpaşa
2.	Arnavutköy.	22.	Güngören.
3.	Ataşehir.	23.	Kadıköy.
4.	Avcılar.	24.	Kağıthane.
5.	Bağcılar.	25.	Kartal.
6.	Bahçelievler.	26.	Küçükçekmece.
7.	Bakırköy.	27.	Maltepe.
8.	Başakşehir.	28.	Pendik.
9.	Bayrampaşa.	29.	Sancaktepe.
10.	Beşiktaş.	30.	Sarıyer.
11.	Beylikdüzü.	31.	Silivri.
12.	Beyoğlu.	32.	Sultanbeyli.
13.	Büyükçekmece.	33.	Sultangazi.
14.	Beykoz.	34.	Şile.
15.	Çatalca.	35.	Şişli.
16.	Çekmeköy.	36.	Tuzla.
17.	Esenler.	37.	Ümraniye.
18.	Esenyurt.	38.	Üsküdar.
19.	Eyüp.	39.	Zeytinburnu.
20.	Fatih.		

(**Source**: www.ibb.istanbul, T.D: 05.08.2018)

2.6 Istanbul Metropolitan Municipality (IMM)

IMM is the largest metropolitan municipality in Turkey according to population (14.657.434 people) which is about 18.6% of the total population of Turkey (Tüik 2015, Tüik.gov.tr, T.D: 19.12.2018); it is ranked 15 in the world according to population traffic and one of the largest urban agglomerations in Europe, It consists of 39 districts.

2.6.1 IMM's mission

IMM's mission has been changed on 2016; it becomes "Presenting services that will meet the needs that have not come off yet in accordance with the local government approach of the 21st Century, bringing municipality services to perfection with an institutional approach which bringing out the cultural identity of the city".(IMM's annual report, 2016: p12).

IMM's mission in 2012 was “To deliver the municipal services with superior, innovative, efficient, and effective governance mentality as a part of our historic duty for Istanbul, the cradle of civilizations, in order to improve the quality of urban life, and to promote Istanbul’s authentic identity and contribute to Istanbul's status as a highly esteemed world city”. (IMM's annual report, 2012: p14)

2.6.2 IMM's vision

IMM's vision has been changed on 2016, it becomes "Local governance of a brand city that creates global value with regard to urban planning and civilization and facilitates life with sustainable, innovative solutions. (IMM's annual reports, 2016: p12), while its vision in 2012 was different, it was “The pioneering and leading municipality reshaping Istanbul as a sustainable world city of superb quality of living and preserving the unique heritage of Istanbul as the global face of Turkey and its window to the world.” (IMM's annual report, 2012: p14)

2.6.3 IMM's principles

- **Justice**: Our municipality takes as a principle to behave in a way that protects rights of all of our shareholders in accordance with the rights and laws while rendering public service.
- **Trust**: IMM takes as a principle to earn the trust of the people in Istanbul, its employees and other shareholders, and to be worthy of such trust.
- **Transparency**: Our municipality takes as a principle to be transparent and accountable while rendering public services.

- **Quality**: It is a principle that services rendered by our municipality satisfy the requirements and expectations of Istanbul citizens at the most optimum level in a manner of quality.
- **Efficiency**: Our municipality takes as a principle to utilize its resources in line with its principles of efficiency, effectiveness and economy.
- **Participation**: Our municipality takes as a principle to ensure social dialogue, contribution and appropriation through meeting on common basis with its shareholders by means of communicating with all relevant parties under a participatory understanding while planning and rendering its services.
- **Leadership**: It takes as a principle to be decisive, self-confident, bold, enterprising, innovative, leading and pioneering municipality. (IMM Annual report, 2016: p12)

2.6.4 IMM's staff

IMM personnel consist of public servants, contracted personnel, contracted artisans and workers. Number of employees in Istanbul Metropolitan Municipality was as follow:

Table 2.3: Number of Employees in IMM

Year	Total Number of employees in IMM
2012	13013
2013	13174
2014	13712
2015	14256
2016	13718
2017	13488
2018	13663

(**Source**: IMM annual reports 2012 -2018)

2.6.5 IMM's yearly budget

Local governments have always affected the health of their local economies (Skelly, 1995: p1); Istanbul as a city generates almost 30% of Turkey’s GDP and IMM plays a fundamental role in Istanbul's economy.

Year after year IMM's budget increases to meet the demand of Istanbul citizens, for example the annual budget for the year 2017 reached up to 18.500.000.000 TL which is equal to state of Georgia's budget for the same year, for 2019 IMM's budget reached up to 23.800.000.000 TL.

2.6.5.1 Expenditure and revenue categories

The expenditure budget according to the economical classification consists of 8 main items:

1. Personal expenditures.
2. State premium payments for social security institutions.
3. Expenditures for purchasing good and services.
4. Interest expenditures.
5. Current transfers.
6. Capital expenditures.
7. Capital transfers.
8. Loaning.

While the revenue budget is formed - according to the economical classification- of 7 main revenue items:

1. Tax revenues.
2. Enterprise and property revenues.
3. Collected donations and aids.
4. Capital revenues.
5. Collection of receivables.
6. Central administration interests and other revenues.
7. Rejections and Returns.

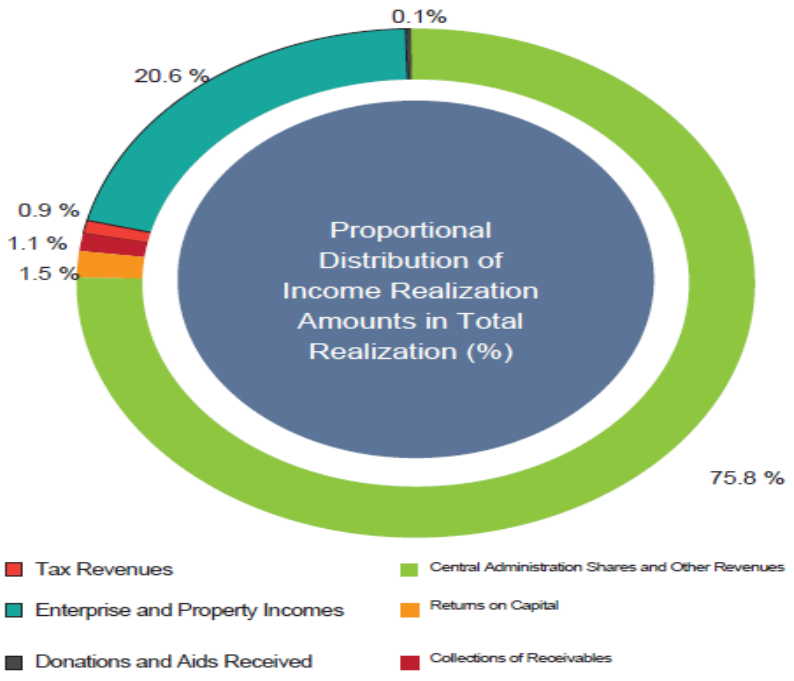

Figure 2.2: The Main Contributions Items in IMM's Budget
(**Source**: IMM's annual report 2017, p 32)

Table 2.4: The Annual Expenditure and Revenue for IMM.

Year	Expenditures (TL)	Realization (TL)	Revenue (TL)	Realization (TL)
2012	7.300.000.000	7.178.078.897	6.600.000.000	7.423.983.342
2013	8.600.000.000	8.596.356.876	7.800.000.000	8.936.033.998
2014	12.870.000.000	12.493.245.706	11.870.000.000	12.276.426.547
2015	12.250.000.000	11,179,608,646	9.850.000.000	10,514,526,248
2016	16.100.000.000	15.068.391.099	12.700.000.000	11.717.664.936
2017	19,639,000,000	19,537,237,836	15,039,000,000	14,610,463,282
2018	22.317.000.000	22.148.025.366	18.467.000.000	18.424.947.829

(**Source**: IMM annual reports 2012 -2018)

2.6.5.2 Credit rating agencies' evaluation of IMM

IMM was looking to have creditability of international organisations to cover the budget shortage and to vary its financing instrument and to meet the needs of its investment projects by obtaining credit from international markets, In this regard, IMM continued its activities in collaboration with Moody's Investors Services, Fitch Ratings and Standard & Poor's, which are worldwide-known credit rating institutes, in order to measure and evaluate the creditability of IMM since 1999.

In 2013 IMM terminated its agreement with Standard & Poor's and began to work with JCR Eurasia Rating, another worldwide known international rating organization.

Credit scores published by such credit rating institutes regarding such activities as a result of examination and rating activities performed in IMM are given below:

Table 2.5: Credit Scores for Istanbul Metropolitan Municipality.

Year	Standards & Poor's	Fitch Ratings	Moody's	JCR-ER
2009	BB- Negative	BB+ Stable	Ba3 Positive	-
2010	BB- Stable	BB+ Positive	Ba2 Positive	-
2011	BB- Stable	BB+ Stable	Ba2 Positive	-
2012	BB- Stable	BBB-Stable	Ba1 Positive	-
2013	Agreement Terminated.	BBB- Stable	Baa3 Stable	BBB- Stable
2014	-	BBB- Stable	Baa3 Negative	BBB- Stable
2015	-	BBB- Stable	Baa3 Negative	BBB- Stable
2016	-	BBB- Negative	Ba1 Stable	BBB- Stable
2017	-	BB+ Stable	Ba1 Negative	BBB Stable
2018	-	BB- Negative	Ba3- Negative	BBB- Negative

(**Source**: IMM annual reports 2012-2018)

2.7 People of Istanbul

In 2015, People of Istanbul has reached 14.657.434 which is about 18.6% of the total population of Turkey (Tüik 2015, Tüik.gov.tr, T.D: 19.12.2018).

TÜİK "Turkish Statistical Institute" has mentioned that the metropolitan city of Istanbul, which has been growing in population everyday by constantly migrating from Anatolia, was the city that received the most migration in 2014. According to TÜİK data; 1 out of every 10 people in Turkey was born in İstanbul, following are the roots of Istanbul citizens in descending order:

Table 2.6: Roots of Istanbul Citizens

No	City	Population in Istanbul	No	City	Population in Istanbul	No	City	Population in Istanbul
1	İstanbul	2.162.588	28	Sakarya	136.783	55	Mersin	56.172
2	Sivas	741.603	29	Bingöl	132.000	56	Isparta	54.922
3	Kastamonu	553.612	30	Batman	128.573	57	Eskişehir	54.541
4	Ordu	511.723	31	Zonguldak	122.592	58	Düzce	48.287
5	Giresun	487.878	32	Kırklareli	119.109	59	Manisa	45.915
6	Tokat	462.852	33	Tekirdağ	117.665	60	Kırşehir	45.486
7	Samsun	422.675	34	Şanlıurfa	117.629	61	Antalya	44.727
8	Trabzon	398.689	35	Bayburt	115.401	62	Kilis	37.947
9	Malatya	398.430	36	Edirne	109.911	63	Bilecik	36.915
10	Erzurum	392.132	37	Balıkesir	100.318	64	Kırıkkale	34.254
11	Sinop	370.806	38	K.maraş	99.195	65	Şırnak	31.847
12	Rize	298.467	39	Bursa	99.186	66	Kütahya	30.416
13	Kars	275.719	40	Karabük	95.441	67	Denizli	30.404
14	Ardahan	241.845	41	Ankara	92.723	68	Erzincan	30.220
15	Mardin	212.681	42	Hatay	91.743	69	Osmaniye	29.364
16	Bitlis	202.247	43	Niğde	90.869	70	Aydın	28.419
17	Diyarbakır	195.555	44	Nevşehir	89.866	71	Karaman	26.234
18	Adıyaman	179.873	45	Iğdır	87.809	72	Siirt	21.433
19	Van	179.634	46	Adana	85.619	73	Uşak	21.218
20	Amasya	175.793	47	Tunceli	85.516	74	Yalova	21.161
21	Çorum	172.758	48	Artvin	83.180	75	Muğla	14.692
22	Ağrı	165.950	49	Gaziantep	79.821	76	Elazığ	14.577
23	Çankırı	162.431	50	Çanakkale	76.722	77	Muş	14.098
24	Kayseri	155.216	51	Izmir	68.338	78	Bartın	9.856
25	Konya	153.000	52	Bolu	66.212	79	Burdur	8.931
26	Yozgat	141.667	53	Afyonkarahisar	57.741	80	Aksaray	4.746
27	Gümüşhane	138.868	54	Kocaeli	57.613			

(**Source**: www.tuik.gov.tr,Tuik 2014, T.D: 19.12.2018)

3. MUNICIPAL ECONOMIC ENTERPRISES

The rapid urbanization, technological developments and the new understanding of public administration in the provision of services which affected the whole world in the 1980s, caused an increase in the demand for and presentation of public goods and services. Nowadays, with the importance of financial localization, municipalities have become more effective institutions. With the expansion of the qualitative and quantitative mandates of the municipalities, new problems have arisen and municipalities have been investigating new ways to solve these problems. (Küçük, 2015: p39)

Today, municipality companies as a separate entity from the municipality have been started to come to the forefront in providing services to citizens. These companies are considered to be one of the new models used in service delivery. This model, philosophically based on new public management, is an appropriate tool for principles such as the customer satisfaction, profitability, devolution and flexibility. In Turkey, municipal companies are being used more and more in servicing citizens. (Demirbaş, 2017: p145)

3.1 Legislations of Municipal Economic Enterprises

The first basic legal basis of the possibility of municipalities to establish or participate in an economic enterprise was the municipal law No. 1580 published in the official gazette on 14.04.1930 No. 1471. (Official gazette, No. 1471, 14.04.1930: p 8821)

Prior to the fulfillment of the said law, urban services such as gas, electricity, water, telephone and tram were carried out by the companies which have privileges due to their profitability in coastal cities such as Istanbul and Izmir.

In the 1980's public policy shifted sharply in favor of market-based solutions, in contrast to the previously dominant "Keynesian" approach to economic management (Öniş, 1991: p163).

After 1984 a new era has begun for municipalities to establish economic enterprises as a result of the existence of a new constitution, the transition to metropolitan municipalities and the privatization of the public sector have become an important factor in the establishment of municipal economic enterprises.

The provisions of the Law No. 1580 has been edited by the decree law No. 3030 dated 27.06.1984 and published in the official gazette No. 18453 on 09.07.1984. (Official Gazette, No.18453, 27.06.1984)

In 1994 a new law has been launched on privatization practices and according to this new law No. 4046 published in the official gazette No. 22124 on 27.11.1994 establishing commercial enterprises for business purposes by municipalities and other local administrations shall be subject to the permission of the council of Ministers. (Official gazette, No. 22124, 27.11.1994)

In 2004 and according to article 26 of the new metropolitan municipality law No. 5216 published in the official gazette on 23.07.2004, metropolitan municipalities may establish capital companies in the fields of duties and services assigned to them in accordance with the procedures specified in the relevant legislation. (Official gazette, No. 24431, 23.07.2004)

The ongoing part of the this article says that; "The general secretary and the personnel who have the title of manager in the municipality and its affiliated organizations can take part in the management and audit boards of these companies.

On 07.12.2004 another legal regulation was adopted "municipal law No. 5272" and it was published on 24.12.2004 in the official gazette number 25680. According to this law; "The municipality may establish a company in the areas of its duties and services in accordance with the procedures specified in the relevant legislation". Thus, it was clearly decided that the establishment of companies by municipalities was limited only to the duties and services of the municipalities. (Official gazette, No. 25680, 24.12.2004)

Municipalities in accordance with the law number 5393 on municipalities' duties and services and in accordance with the procedures specified in the related legislation (article 70), municipalities can establish businesses with special income and expenses (article 71). In this context, companies established by municipalities upon the decree no. 696 do not fall under the scope of "state economic enterprise". (Official gazette, No. 25874, 13.07.2005)

Based on the above, municipalities were able to establish or participate in existing companies based on the authorization provided to them by the municipalities' law and by the general provisions of the Turkish Commercial Code; it may be defined in the form of public entities with special budget established by municipalities to execute local services. In order to realize the purposes defined in Article 15 of the Municipal Law, which focuses on initiatives aim to produce goods and services owned by municipalities, which are established by municipal governments and whose current activities are financed and established to maximize the social and economic benefits of the local community.

On the basis of these legal grounds and since 1984 the municipalities have moved to rapid corporations in many areas, and BİT "Municipal economic enterprise" has been founded and emerged in big cities such as Istanbul, Ankara and Izmir.

3.2 Reasons to Establish Municipal Economic Enterprises

Municipalities are public legal entities that are aiming to meet the common and civil needs of its inhabitants. The main aims of these administrations are to work in the public interest, to meet the important needs of the inhabitants, to contribute to their well-being, to make them continuously reliable and economic, and eventually to gain the appreciation of the people living within the municipal boundaries.

Providing quality services and goods requires strong financing and municipalities are searching for ways out of the narrow space they are in. As a result, municipalities carry out their operations in accordance with the provisions of private law by turning some enterprises into companies in order to get rid of the strict rules and heavy functioning of public law and public bureaucracy in order to carry out some public services more effectively. The reasons for establishing economic enterprises might be listed as below:

1. To reduce bureaucracy and minimizing legal restrictions.
2. To make more free expenditures by avoiding bureaucratic procedures and supervision.
3. To create new sources of income.
4. To reduce the administrative oversight of the central government over municipalities.
5. To be able to use credit from private banks.
6. To contribute to the social and economic development of the city and to be pioneer in this field.
7. To get rid of the restrictions of the state procurement law no. 2886.
8. To have the opportunity to apply flexible employment and flexible wage policy by excluding the public personnel regime.
9. To ensure that the public funds to private companies through the tender are returned to the municipalities through the firms.

It can be summarized as mobilizing financial capital, creating employment opportunities and making use of local opportunities by ensuring the participation of local people. (Demirkan, 2014: p52-53)

3.3 Types of Establishments of Municipal Economic Enterprises

Taking in consideration the differences within the organizations, their functions and operations, it is possible to examine the economic initiatives of the municipalities under the following four main headings:

A. Businesses for municipal budget.
B. Organizations with revolving funds.
C. Companies that the municipalities establish and participate in.
D. Unions that established by municipalities.

3.4 Formation of Municipal Business Companies

The legal basis that enables municipalities to establish companies and become partners with other companies is Article 19 of Municipality Law No. 1580 and Article 275 of Turkish Commercial Code.

According to Article 15 of the Turkish Commercial Code, enterprises and establishments (companies) founded by municipalities to be managed and operated in accordance with the provisions of private law are considered merchants. Furthermore, these companies are obliged to register with the trade registry and register with the Chambers of Commerce in accordance with Article 13/1 of the Trade Registry Regulation.

Administration and inspection of these companies are also subject to the provisions of TCA and relevant legislation. Bodies of the companies consist of general board (TCA Art.360-398), executive board (TCA Art. 312-346), and inspectors (TCA Art.347-359). (IMM's annual report, 2012: p29)

After the legislative decree no. 696, municipality companies were assessed in the same category as the state economic enterprises. This decree is in fact the framework law of municipality companies. In accordance with the framework law, municipalities are obliged to fulfill the duties and services given to them by law in order to be able to carry out any kind of enterprise. In other words, these duties and services will be fulfilled first and then any attempt will be made to develop them.

As we mentioned before, one of the main legal basis of the establishment of the municipalities is the Municipal Law No. 5393. This law affirms that municipalities shall carry out public transportation works within the borders of the municipality, ordering and selling, making municipal dwellings, and carrying out the activities of the companies to undertake urban transformation activities.

The financial supervision of the enterprises is the same procedures as municipality budgets prepared, approved and implemented. The principles and procedures to which the municipal budget applies shall apply and the accounting and financial transactions are subject to the supervision of the municipal accountant. Beside the companies' activities which are under the court of accounts audit.

3.5 Procedures to Establish Municipalities' Companies

In the circular No. 46894 of 16.08.1995 issued by the ministry of interior, the following documents shall be submitted to the council of ministers in order to obtain permission for local governments to establish economic company:

1. Report showing the reasons for the establishment or participation of the company.
2. Report showing the feasibility study of the company to be established.
3. Purpose and field of activity of the company.
4. Amount of participated capital.
5. Income-expense cash status.
6. The latest profit and loss statement of the company.
7. Positive opinion of the local governor regarding the establishment of the company,

3.6 Differences between Municipal Economic Enterprises and State Economic Enterprises

The first difference between Public Economic Enterprises and Municipal Economic Enterprises refers to the establishment laws of both of them. Public Economic Enterprises are subject to the decree law No. 233. On the other hand, since there is no clear legal regulation for Municipal Economic Enterprises, these enterprises are at the discretion of the governing bodies of the municipalities.
Another important difference arising from the implementation; the boards of public economic enterprises are appointed by the treasury and the boards of municipal economic enterprises are appointed by the governing bodies of the municipalities. (Demirkan, 2014: p74)

Public Economic Enterprises were established in areas and regions where private sector did not or could not invest. These enterprises neither carry out the essential functions of the state nor contribute to the more effective and efficient implementation of these functions.

On the contrary, they impose new functions on the state and cause the administrative and economic mechanisms to become more complex. Today states' economic activities in the public economy are classified into three groups: financial monopolies, industrial services and national industries.

The state regulates and manages the budgets of these economic enterprises according to the specific market conditions because these economic enterprises cannot carry out the trading transactions within the state accounting or state bureaucracy in accordance with the promptness and price movements required by the free market conditions.

These kinds of state institutions are established independently within the framework of private law provisions. Consequently, they are considered as separate budgets outside the state budget for these organizations. These budgets are called special budgets against state budgets or annexed budgets.

The activities of the public economic enterprises, which also aim to achieve price stability in the market, are mostly shaped by the decisions of the executive body. For this purpose, depending on the economic and social strategies adopted, prices are above the general level.

In order to be effective, from time to time, the prices of the goods and services produced by these organizations are adjusted to prevent the excessive rise in the prices of the manufactured goods of the companies using these products in their production.

3.7 Privatization of Municipal Economic Enterprises

Towards the end of the 1970s, the privatization of municipal companies was implemented particularly in the United States and the United Kingdom. Privatization is considered as one of the best solutions for the rehabilitation of public sector, especially municipal enterprises. Privatization aims to ensure increasing in economy and decreasing in public expenditures. Subsequently, this practice has started to be applied in developing countries as well.

Privatization is a mean used to create the market economy with its conventional meaning. It is the spirit of privatization that private enterprises operate in a number of areas where the state is obliged to provide services. On this basis, the state can allocate more time to its primary tasks, allow the capital to spread to the local level, and evaluate the movable or immovable assets that are waiting in an ineffective state. (Demir, 2019: p1)

In 1984, privatization has become on the agenda of the critics for central public services in Turkey and especially for public economic enterprises and one of the main issues in local administrations in a short time.

Neoliberal reforms have transformed the lives of many throughout the world and have embodied different forms depending on the level of urban development. (Kadirbeyoğlu and Sümer, 2012: p340)

Topics covered by the term privatization can be grouped into four points:

1. Pricing of social goods (public services).
2. Social goods that cannot be priced (instead of providing public services by the contractor).
3. Ending the rules laid down by the public about the regulation of the activities of private firms, regulating the production of competition,
4. Privatization of state economic enterprises and other state-owned enterprises.

(Akalin, 1994: p16)

The privatization issues mentioned in the above four articles are all within the jurisdiction of local administrations. It is desired to be done at the level of local administration: narrowing the volume of local administrations in the economy and reducing interventions, here of course, the word public means not only the central state; they are also local administrations.

It is observed that local governments have established and developed new public enterprises. In other words, it can be argued that while the state privatization policy is in the field of public enterprises, local governments continue to pursue state's policy. As a matter of fact, local administrations provide bread, concrete pole, hotel management, fuel distribution, drinking water marketing, natural gas, bus and tramway enterprises, supermarkets, hospitals, tourism and sports facilities enterprises, coal marketing, subway, water network operation, spas, beaches as much as they do in the public sector in a very common field; In some industries, for example textiles and apparel, food, local companies are also partners.

Municipality law No. 5393 article 18 titled "duties and authorities of the municipal assembly" shows that: to grant privileges on behalf of the municipality and to make the municipality investments with build-operate or build-operate-transfer model; and decide on the privatization of subsidiaries. According to its provisions, the municipalities are competent body for privatization.

The most comprehensive legal regulation related to the privatization practices in the financial sense in the municipalities has been made within the law No. 4046 issued in the official gazette No. 22124 dated 27.11.1994 on regulation of privatization practices and amendments in some laws and decree laws. (Official gazette, No.22124, 27.11.1994)

The law includes a set of procedures and principles to be followed in the privatization process, the use of the revenues and the status of the personnel in the privatized organisations.

Article 26 of the Law No. 4046 titled "Privatization Practices in Local Administrations" gives the municipalities the power to privatize within the framework of the principles of the law regarding the privatization of their shares in their subsidiaries.

The law also regulates the way in which the proceeds of privatization will be evaluated and the compensation that should be paid due to job loss that may occur as a result of the privatization practices.

3.7.1 Reasons for privatization of local public services

All of the elements described as purposes and reasons of privatization are also largely relevant to the privatization of public services at the local level.
In addition to these general reasons, however, there are a number of other reasons that may apply to the privatization of public services at the local level. The main reasons for the use of privatization methods by local governments in the provision of local public services might be listed as below:

1. Due to the rapid population growth in cities, the need and demands for urban services are also expanding and diversifying. As a result, local governments' service methods used to provide services are insufficient.
2. The limited availability of public funding sources also negatively affects the capacity of local governments to provide services.
3. The fact that the private sector often produces the same service at a cheaper price encourages local governments to benefit from the private sector in the provision of services, aiming to reduce the cost of local services.
4. Another reason why local government services are carried out to private firms is to increase productivity and improve service quality.
5. It is a fact that local governments are aware of the lack of qualified technical personnel and advanced technical tools and equipment in conducting local services. Therefore, it is sometimes necessary to benefit from the private sector especially for the services requiring intensive technical knowledge and technical equipment.
6. Privatization serves as a buffer against the political influence and pressures of the central government and voters, which may be a matter for the local administration in the conduct of local services, allowing the service to be directed by objective elements such as service requirements rather than objective elements such as political preferences and personal interests. (Demirkan, 2014: p82-83)

3.7.2 Methods of local public services privatization

Turkey and other countries are using the following methods to privatize the local public services:

1. Tender Method
2. Concession Method
3. Leasing Method
4. Coupon Method
5. Volunteer Organizations and Self-Help Method
6. Pricing Method
7. Tax Incentive and Administrative Arrangements Method
8. Build Operate Transfer
9. Incorporation and Joint Venture

(Demirkan, 2014: p84)

4. ISTANBUL METROPOLITAN MUNICIPALITY'S COMPANIES

4.1 Preface

Municipal Companies of Istanbul metropolitan municipality are legal entities of private law established according to Turkish Commercial Act (TCA) No 6762 and the provisions of relevant legislation with respect to the authority entitled by the municipal law.

Administration and inspection of these companies are also subject to the provisions of TCA and relevant legislation. However, IMM companies is activating in 7 different areas: Environment, Energy, Food and Drinks, Services, Construction, Technology and Transportation.

4.2 Structure of Istanbul Metropolitan Municipality's Companies

All Istanbul metropolitan municipalities' companies have been established as joint stock company, their administrative structure is in line with the provisions of the Turkish Commercial Code. Bodies of the companies consist of general assembly, board of directors and inspectors.

One of municipal economic enterprises units called Subsidiary Company General Directorates "İştirak Şirket Genel Müdürlükleri", it is a unit in charge of providing management, planning, programming and operation of associates according to their economic and efficiency bases; It aims to conduct and coordinate the effective communication, reporting and information exchange activities between Istanbul Metropolitan Municipality and its companies, and following up the obligations and risks of the participating companies in Istanbul Metropolitan Municipality, mobilization of idle resources and ensuring that developing resources are used according to Istanbul Metropolitan Municipality's requirements and local community benefit criteria.

4.3 Sectors of IMM's Companies

IMM creates 28 companies work in 7 different sectors as following:

- Construction Sector and it includes 5 companies.
- Services Sector and it includes 6 companies.
- Food & Drinks Sector and it includes 4 companies.
- Transportation Sector and it includes 4 companies.
- Information Technology Sector and it includes 4 companies.
- Environment Sector and it includes 2 companies.
- Energy Sector and it includes 3 companies.

Table 4.1: IMM Companies at the Construction Sector.

No	Sector	Name of the company
1	Construction	İmar A.Ş.
2		İston A.Ş.
3		İsfalt A.Ş.
4		Kiptaş A.Ş.
5		Bimtaş A.Ş.

Table 4.2: IMM Companies at the Services Sector.

No	Sector	Name of the company
1	Services	Kültür A.Ş.
2		Spor A.Ş.
3		İsper A.Ş.
4		İsyön A.Ş.
5		Boğaziçi Yönetim A.Ş.
6		İstgüven A.Ş.

Table 4.3: IMM Companies at the Food & Drinks Sector.

No	Sector	Name of the company
1	Food & Drinks	Halk Ekmek A.Ş.
2		Hamidiye A.Ş.
3		Güvensu A.Ş.
4		Beltur A.Ş.

Table 4.4: IMM Companies at the Transportation Sector.

No	Sector	Name of the company
1	Transportation	Metro A.Ş.
2		Otobüs A.Ş.
3		Şehir Hatlari A.Ş.
4		İspark A.Ş.

İDO, İstanbul Deniz Otobüsleri Sanayi ve Ticaret A.Ş. was one of Istanbul Municipal economic enterprises till the year 2011 and because of many difficulties Istanbul Metropolitan Municipality decided to sell 100% of its shares in İDO (for 30 years), numerous companies have participated in the tender and finally Tepe-Akfen-Souter-Sera has won the deal, and it was the first time for IMM to have such a privatization experience.

Table 4.5: IMM Companies at the Information Technology Sector.

No	Sector	Name of the company
1	Information Technology	Belbim A.Ş.
2		İsttelekom A.Ş.
3		İsbak A.Ş.
4		Medya A.Ş.

Table 4.6: IMM Companies at the Environment Sector.

No	Sector	Name of the company
1	Environment	İstaç A.Ş.
2		Ağaç A.Ş.

Table 4.7: IMM Companies at the Energy Sector.

No	Sector	Name of the company
1	Energy	Enerji A.Ş.
2		İgdaş A.Ş.
3		Ugetam A.Ş.

4.4 Overview at Lines of Business of IMM Companies

4.4.1 Ağaç ve Peyzaj A.Ş.

Ağaç ve Peyzaj A.Ş. (Tree & Landscape Inc.) has been established in August 4, 1997.
The shareholders of this company are:

- Istanbul metropolitan municipality (IMM).
- İski.
- Isfalt A.Ş.
- Metro A.Ş.
- İston A.Ş.

The company has been established to produce soil mixture material and to develop plants, parks, gardens, landscaping, basin afforestation and plant cultivation. In addition to the maintenance of existing green areas in Istanbul, The company offers every product used in the industry ranging from flower seeds to soil.
The company works in field of sapling and ornamental plant cultivation at Alibeyköy and Pendik Nurseries in a scale to meet the sapling needs of the country, vegetable soil production for these plants and to conduct studies on the marketing and sales of these products.
It also aims to perform services such as landscape projects that add to the city's aesthetics, environmental and road junction's layouts, watershed reforestation and maintenance of the urban forest.
It has been the pioneering company of the industry with the works it has done and has signed the projects for the supply of qualified plants and landscaping applications in order to bring green spaces to Istanbul by raising the plant standards.
(Ağaç ve Peyzaj website, www.agac.istanbul, T.D: 27.10.2018)

4.4.2 Belbim A.Ş.

Belbim Elektronik Para ve Ödeme Hizmetleri A.Ş. (BELBİM Electronic Money and Payment Services Inc.) formerly called BELBİM İstanbul Belediyeleri Bilgi İşlem Sanayi ve Ticaret Anonim Şirketi (The Municipal Data Processing Corporation of Istanbul). The company has been established in 31.07.1987, the shareholders of the company are:

- Istanbul metropolitan municipality.
- İett.
- İski.
- İsbak A.Ş.
- İgdas A.Ş.

Belbim's main operations are data processing, project design, mapping and planning, providing electronic and electromechanical equipments for the municipal administrations of Istanbul, their partnerships as well as other state and private companies. Since 1994 new projects were launched by Belbim which were not attempted in Turkey ever before.
Since 1994 Belbim also got engaged in city planning and photogrammetric mapping projects, speeding up its efforts to complete updated plans and maps of Istanbul. Another operational branch is printing all kinds of material for the municipalities.
In 1995 Belbim launched "Smart Ticket" project (Akbil) for mass transport; it was being the first of its kind in Turkey.
Istanbul Kart is used in 6,222 buses, 118 metro stations, 51 Metrobus stations, 64 sea transport stations, 3 cable car stations, 58 tramway stations, 163 city toilets, 469 car parking. (Belbim website, www.belbim.istanbul, T.D: 27.10.2018)

4.4.3 Beltur A.Ş.

Beltur (Büyük İstanbul Eğitim Turizm ve Sağlik Yatırımları Işletme ve Ticaret Anonim Şirketi) has been founded in 01.01.1997, the shareholders of the company are:

- Istanbul metropolitan municipality.
- İston A.Ş.
- Kiptas A.Ş.
- Hamidiye A.Ş.
- Kultur A.Ş.

Beltur's objectives were to construct, purchase, hire and operate all kinds of hotels, motels, hostels, restaurants, camps, and holiday inns, as well as purchasing, hiring and operating of all kinds of sanitary facilities with and without beds like hospitals, diagnostic and therapy clinics, medical labs and dispensers.
Beltur today has limited its operational area to historical sites only. The company started to restore work in the historical mansions of Istanbul, which it was scary to lose its historic character. Within a short period of time, the historical mansions were originally renovated to suit the needs of domestic and foreign guests.
Beltur operates seminars, interviews, press conferences, dealer meetings, launches, wedding parties in the historical sites that they operate; they have many magnificent places like:

- Hıdiv Kasrı in Beykoz.
- Sarı Köşk and Beyaz Köşk in Sarıyer.
- Küçük Çamlıca Köşkleri and Su Köşkü in Üsküdar.
- Malta Köşkü in Beşiktaş .

(Beltur website, www.beltur.istanbul, T.D: 27.10.2018)

4.4.4 Bimtaş A.Ş.

Bimtaş, Boğaziçi Peyzaj İnşaat Müşavirlik Teknik Hizmetler Sanayi Ticaret Anonim Şirketi (The Bosphorus Construction Consultancy and technical services Inc.) has been founded in 26.08.1987 but it became one of IMM affiliate companies in 1997.
The shareholders of this company are:

- Istanbul metropolitan municipality.
- İski.
- İstanbul ticaret borsasi.
- Hamidiye A.Ş.
- Basmaci pazarlama.
- Otak inşaat.

The purpose of the foundation was to provide engineering, consultancy and project services to affiliate of Istanbul Metropolitan Municipality, district municipalities, public and private institutions for the realization of infrastructure and superstructure investments as a matter of planned and healthy urbanization.
Bimtaş has accomplished several studies that changes the face of Istanbul, a city progressing rapidly to be a global center, Bimtaş has been meeting the demands of local governments and private sector by providing services both domestically and abroad such as feasibilities, surveying and consultancies in all aspects of life ranging from stream rehabilitation to marine structures, energy, metro systems, industrial facilities, cultural centers, sports complexes, park and garden arrangements.
Bimtaş has provided services to public and private sectors like converting 3D laser data after 3D processing into 3D technical drawing.
Bimtaş currently is the only company in Turkey provides services in 3D mapping and generating city model at different levels by using airborne laser scanning which is a part of laser scanning technologies. (Bimtaş website, www.bimtas.istanbul, T.D: 28.10.2018)

4.4.5 Boğaziçi yönetim A.Ş.

The company has been founded on 06.09.1997, with a capital of 2.688.000 TL and it aims to bring solutions to the problems of urban sprawl. It also aims to transform the new settlement regions, which have been found to be rightly appreciated and famous throughout the country, to "livable places" for the people who live in.

The Share holders are:

- Istanbul metropolitan municipality.
- Kiptaş A.Ş.
- Toki.
- Ağaç ve Payzaj A.Ş.
- İmar A.Ş.
- İstaç A.Ş.
- Pendik Hilal Konutlari.

The mission of the company is to detach and complex places of business together with the services provided in public housing; to provide professional management and management services and to provide consultancy services on urban planning and all kind of inland study and projecting brought by urbanization and to ensure the necessary investments in healthy urbanization.

Since the first day of operation and in its luxury, medium and social houses built by Toki and Kiptaş the company established site management organizations with rational and correct methods, providing a clean, peaceful and safe environment to the floor owners, placing the awareness of using common areas at the same time and creating areas reinforcing neighborhood relations.

The company has served most of the cities in all over Turkey and it works more than 80 big projects in Istanbul alone.

(Boğaziçi yönetim website, www.bogaziciyonetim.istanbul, T.D: 28.10.2018)

4.4.6 Halk Ekmek A.Ş

The Halk Ekmek company, (The Istanbul People's Bread) has been founded on 26th August 1978, the shareholders are:

- İstanbul metropolitan municipality.
- Municipality of Yalova.
- Municipality of Şile
- Municipality of Silivri.
- Hamidiye A.Ş.

The "Halk Ekmek" or People's Bread company's initial phase started in February 1971; after the legal formalities were met the necessary machinery and equipment were imported. Due to some problems and misfortunes the bread production could not start until 26 August 1978.

The Halk Ekmek has increased its production from 240,000 loaves on 27th of March 1994 to 1,600,000 loaves of bread today. The "bread kiosks" numbers rose from 1198 to about 1497.

The company aims to provide better service to the people of Istanbul and to be effective in preventing excessive and unfair practices in bread prices. In particular, Halk Ekmek, which enables the people of Istanbul with low income to stay in the pockets of the unimportant amount of money, also undertakes an important mission in the formation of the quality standard of bread and other floury foods.

Istanbul Halk Ekmek produces quality products and cleanliness. The company aims to offer more services to the people by using all means. For this purpose, it continuously increases production capacity. In addition to the plant in Edirnekapi, two new factories have been established and they produce more than 15 types of bread. (Halk Ekmek website, www.ihe.istanbul, T.D: 29.10.2018)

4.4.7 Hamidiye A.Ş.

The Hamidiye, (Hamidiye Spring Water Company) has been founded on 20th March 1979, The shareholders of the company are:

- İstanbul metropolitan municipality.
- İdo A.Ş.
- İgdaş.
- İski.
- İston A.Ş.

The Hamidiye spring water facilities were first introduced on 26th of May 1902 by the Ottoman Sultan Abdulhamid II, during those times citizens of Istanbul were enjoying spring water from 145 fountains, and today 17 Hamidiye fountains are still intact.

These facilities were reorganized by the metropolitan municipality as a corporation and opened up anew on 20th of March 1979.

In 1994 the Hamidiye Company made its biggest leap forward achieving modern facilities and a modern organization. Following up all the developments made throughout the world concerning the water sector, Hamidiye became the leader in Turkish water business.

Today the world's first fluorinated bottled water is supplied by Hamidiye for the citizens of Istanbul. Fluorinated water is advised by the WHO as means of preventive medicine.

Hamidiye has been the official beverage of many international meetings like UN climate summit in Copenhagen, International Monetary Fund (IMF) meetings and the World Water Forum (WWF), in addition to over 20 international airlines serve Hamidiye water to their passengers and its first international customer was Royal Dutch Airlines. (Hamidiye website, www.hamidiye.istanbul, T.D: 29.10.2018)

4.4.8 İgdaş

İgdaş, İstanbul Gaz Dağıtım Sanayi ve Ticaret Anonim Şirketi (Istanbul Distribution Industry and Trade Company) was founded on December 25, 1986, the shareholders for the company:

- Istanbul metropolitan municipality.
- İETT.
- Hamidiye A.Ş.
- İsbak A.Ş.
- İmar A.Ş.

The company was founded with clear intent of saving Istanbul from air pollution, İgdaş started to fulfill the fuel need of the city with natural gas, which is the most economic means of energy source.

In May 1987, İETT initiated the feasibility studies and proposals were examined, the material and workmanship of Istanbul natural gas system were tendered by the French SAE firm and Alarko Consortium.

As a result of the studies started in 1989, the first natural gas line was launched in Kadıköy in January 1992 and the first part of the investment by the consortium was completed in May 1993.

IMM has set as its priority target to spread the use of natural gas due to the fact that the natural gas is the cleanest fossil fuel known and it will help to reduce the air pollution in the city.

In accordance with this objective, many decisions has been taken by the provincial local environment board and by the provincial public hygiene assembly to make the use of natural gas in the places obliged to be made obligatory.

As the exclusive natural gas distribution company in Istanbul, İgdaş now ranks 3rd in the natural gas sector in Europe. (İğdaş website, www.igdas.istanbul, T.D: 29.10.2018)

4.4.9 İmar A.Ş.

The company, Istanbul İmar ltd. Şti. has been founded in 1946, with the title "Emlak Bankası A.Ş. where IMM had 50% of total shares. The company continued its activities until 1987 and realized various real estate projects.

On 12.03.2001 Sümer Holding A.Ş. bought %50 of Emlak Bankasi shares and on 21.03.2005 as a result of the tender held by Sümer Holding, these shares were purchased by KİPTAŞ A.Ş. In September 15, 2005, İstanbul İmar Ltd. Şti, has changed its name to Anonim Şirketi and changed its name to be İstanbul İmar İnşaat A.Ş.

The shareholders of İmar are:

- Istanbul metropolitan municipality.
- İston A.Ş.
- Kiptas A.Ş.
- İstac A.Ş.
- Konut A.Ş.

The company aims to restore, maintain and replace non-sanitary buildings to new buildings in accordance with the laws and regulations; here are some of their works:

- Haseki Evleri.
- Mecidiyeköy evleri.
- Atatürk Bulvarı Blok Apartmanları.
- Kadıköy koşuyolu Mahallesi.
- Emirgan İkramiye Evleri.
- Çengelköy Bahçelievleri.
- Okmeydanı İETT Blokları.
- Etiler Basın Sitesi
- Yeni Levent Oyak Apartmanları.
- İçernköy Sosyal Konutları.
- İ.T.Ü Ayazağa Kampüs İnşaatları.
- Atatürk Kültür Merkezi.
- Atatürk Yeni Havalimanı.
- Sahaflar Çarşısı.
- Belediye Sarayı.
- Çemberlitaş Darüşşafaka sitesi.
- Emlakbank Kadıköy, Beşiktaş Bankalar Caddesi.
- Cihangir, Kuledibi, Yanıksaraylar, Tepebaşi, Taksim, Mecidiyeköy katotoparklar. (İmar website, www.imar.istanbul, T.D: 03.11.2018)

4.4.10 İsbak A.Ş.

The Company İsbak, İstanbul Bilişim ve Akıllı Kent Teknolojileri A.Ş. (Istanbul IT and Smart City Technologies) was established by IMM in 1986, the shareholders are:

- İstanbul metropolitan municipality.
- İski.
- İETT.
- 10 local municipalities.

The company aims to perform traffic and system engineering, projecting and implementation services and removing dependency on foreign technology by making domestic production. It also carried out the vehicle maintenance and repair services of Istanbul Metropolitan Municipality along with traffic signalization works of Istanbul during the first years of its foundation.

The company extended its area of operations with the establishment of its Research and Development department in 1995 and started professional works in the field of intelligent transportation systems with traffic signalization being in the leading position.

İsbak has become one of the most crucial actors of the sector as the biggest producer of applicator of Intelligent Transportation Systems of Turkey at the international market. In 1995 the first traffic domestic signal lamb was applied in Istanbul and it was presented by the Mayor of Istanbul of that period Recep Tayyip ERDOĞAN.

İsbak produces new and domestic technologies in the following areas:

Smart city technology and applications, intelligent transportation systems, transportation planning and geographical information systems, communication-vision and city safety management system, intelligent lighting system, tunnel management system and vehicle tracking and fleet management systems.

It aims to solve the traffic problem not only Istanbul but also in other large domestic and foreign metropolises. İsbak becomes the greatest producer and applicator of intelligent transportation systems in Turkey; it gives service as one of the most crucial actors of the sector in international market. There are more than 50 cities in Turkey and 20 countries in the world use İSBAK products systems.

(İsbak website, www.isbak.istanbul, T.D: 03.11.2018)

4.4.11 İsfalt A.Ş.

The company has been established in1986 with a mission to build all facilities necessary for the production of asphalt and to produce and meet the asphalt demands of the greater Istanbul metropolitan area, the shareholders of the company:

- İstanbul metropolitan municipality.
- İETT.
- 11 local municipalities.

İsfalt is the company number 1 in asphalt producing in Turkey, it produces 2,500,000 tons/year and it considers as one of the largest in Europe.

İsfalt enjoys a reputation for high quality from Europe to the far east, well organized with highly qualified and educated staff, İsfalt is a world class company ranking 21st among all public industrial enterprises in Turkey.

İsfalt is membership in the American Asphalt Institute and participate in the organization of trade conferences and has led to partnerships with international companies like Shell, Kraton and German firm Buderus.

İsfalt has 4 factories and they produce 6 types of asphalt: silent asphalt, colored asphalt, modified asphalt, ready asphalt, mortar type coating and stone mastic asphalt. The company's plants recycle more than 500.000 KM annually into the country's economy; İsfalt did a lot of mega projects such as:

- Istanbul 3rd airport.
- E5 Highway.
- Yavuz Sultan Selim Bridge.
- TEM highway.
- Avrasya tunel.

(İsfalt website, www.isfalt.istanbul, T.D: 03.11.2018)

4.4.12 İstgüven A.Ş.

İstgüven, İstanbul Güvenlik A.Ş. has been founded in 08.11.2016 with a capital of 10.000.000 TL, the company aims to deal with exclusive protection and security services within the scope of the 5188 numbered Private Security Services Law.

It also aims to provide security services and security consultancy services exclusively and also it can provide private security education and open training schools, İstgüven has worked in different areas such as:

- Atatürk Kütüphanesi.
- Sultanahmet Camii.
- Süleymaniye Camii.
- Cemal Reşit Rey.
- Cihangir Sosyal Tesisleri.
- Florya Atatürk Ormani.
- Florya Sahili.
- Haller Müdürlüğü.
- İbb Saraçhane.
- Karaköy Tünel.
- Maltepe Orhangazi Şehir Parki.
- Metro.
- Metrobüs.
- Mezarlik Edirnekapi Şehitliği.
- Miniatürk.
- Park ve Bahçeler.
- Şehir Hatları.
- Taksim Cumhuriyet Sanat Galerisi.
- Tramvay.

(İstgüven website, www.istguven.istanbul, T.D: 07.11.2018)

4.4.13 İspark A.Ş.

İspark (İstanbul Otopark İşletmeleri Ticaret Anonim Şirketi) has been founded in 2005, the shareholders of the company are:

- İstanbul metropolitan municipality.
- Halk Ekmek A.Ş.
- Some independent investors.

The company aims to reduce of urban traffic intensity, and works to strategically determine where to build new car parks and to make mainly underground or multi-storey car parks.

İspark is working to provide quality, safe and modern parking service to the citizens of Istanbul. It aims to open and operate multi-storey car parks belong to IMM and manage and operate them in a single and systematic way.

İspark works to promote short-term parking in the city and to take long-term parking from main arteries and transfer it to less dense areas. İspark supports the provision of integrated transportation which brings many different projects together within Istanbul.

İspark provides modern services such as Boat Park, Heliport, Pocket Bus Station, Smart Bike, Park and Continue, Technological Parks, Smart Applications which contributes to find solutions and to reduce traffic density in Istanbul.

(İspark website, www.ispark.istanbul, T.D: 07.11.2018)

4.4.14 İsper A.Ş.

İsper, İstanbul Personel Yönetim Anonim Şirketi (Istanbul Personnel Management Corporation) was founded by IMM in 2009 and it was called SAĞLIK A.Ş. (Istanbul Health Enterprises Corporation) but in 2017 the name has been changed to İSPER A.Ş. The shareholders of the company are:

- Istanbul metropolitan municipality.
- Metro A.Ş.
- İston A.Ş.
- İsfalt A.Ş.
- İstac A.Ş.
- Enerji A.Ş.

İsper has an important organizational power that provides quality service and professional workforce support to health and social projects of Istanbul Metropolitan Municipality with its twelve thousand employees.

İsper provides services to all citizens living in Istanbul without discrimination. It carries out these activities in a comprehensive and easy way, contribute to the physical and psychological health integrity of the people, making the necessary

coordination and direction in the field of health and social services to the people in need, taking the necessary precautions in the field of environmental and public health, offering training and consultancy services at all times, adopting the aim of presenting it to everyone and everywhere, taking into account the principle of Trust in Service and acting with this aim.

The company aims to realize the health section of the local management services rendered by the municipality in the most extensive and active manner, it aims also to provide coordination and to assume the mission of executing the related service in social terms in the name of the metropolitan municipality by adaptation the facilities provided by state into health sector effectively.

All citizens are the target group of İsper projects but the focus is mainly on the disabled, elderly, children and women.

(İsper website, www.isper.istanbul, T.D: 07.11.2018)

4.4.15 İstaç A.Ş.

İstaç, İstanbul çevre yönetimi sanayi ve ticaret anonim sirketi (Istanbul Environmental Management Industry and Trade Inc.) was established in 1994, the shareholders of the company are:

- İstanbul metropolitan municipality.
- Metro A.Ş.
- İdo.
- İsfalt A.Ş.
- İETT.

İstaç is a premier waste management company in Turkey; it had become the first landfill operator and quickly became one of the Turkey's largest recycling, services and disposal companies. İstaç has maintained a unique reputation for environmental management practices and environmental research and development.

İstaç has more than 40 operation units and it operates many facilities and handles large amount of municipal waste compared to many European countries' total productions. İstaç's mission is to provide solutions with its approach of zero effect for more habitable environment, and to raise environmental awareness. İstaç operates in the following areas:

- Field selection, design and construction of sanitary landfill.
- Technical consultancy for local administrations.
- Industrial waste disposal management.
- Medical waste disposal management.
- Environmental laboratory analysis.
- Transfer stations and operations of landfill areas.
- Electricity production from landfill gas.
- Compost production from organic wastes.

- Recycling of packaging wastes.
- Production of refused drive fuel (RDF).
- Extraction waste from vessels.
- Cleaning of Istanbul main arterial roads and squares.
- Costal and beach cleaning.
- Excavation, construction and wreckage waste management.
- Training and activities on environment.
- Research and Development.

(İstaç official website, www.istac.istanbul, T.D: 07.11.2018)

4.4.16 İstanbul Enerji A.Ş.

The company has been established with the name of BEL-PET on 16.08.1962 with the partnership of Petrol ofisi and Istanbul Municipality to trade petroleum products. On 31.08.1992 Petrol ofisi sold its shares in BEL-PET to (İDO) Istanbul Deniz Otobüsleri and to (İsfalt) Istanbul Asphalt Plants and from that date the company was transformed into a limited company and it became completely an IMM organization and on 21.03.2006 the BEL-PET company changed its name to be Istanbul Enerji A.Ş. Company, The shareholders of the company are:

- Istanbul metropolitan municipality.
- Kiptaş A.Ş.
- Metro A.Ş.
- İsfalt A.Ş.
- İsbak A.Ş.

The company works in different areas of energy such as:

- Wind Power.
- Solar Energy.
- Hydro Electricity.
- Biomass Energy.
- Geothermal Resources.

In addition to that Istanbul Enerji A.Ş. works in sea waste separation and recycling activities, wholesale and retail fuel, architectural lighting and as an alternative to fossil fuels, the Company continues to work on creating an environmentally-friendly electric vehicle charging infrastructure.

(İstanbul Enerji official website, www.enerji.istanbul, T.D: 10.11.2018)

4.4.17 İstanbul Otobüs İşletmeleri A.Ş.

İstanbul Otobüs İşletmeleri (Istanbul Bus Company) has became an IMM company in 9/9/1997, it aims to provide a convenient public transport service to the people of Istanbul within its boundaries, it aims to provide the highest quality service to the public and to provide economic vitality by developing various related social responsibility policies, The shareholders of the company are:

- Istanbul metropolitan municipality.
- Kiptaş A.Ş.
- İston A.Ş.
- Metro A.Ş.
- İsfalt A.Ş.

In addition to public transport bus services, Istanbul Bus Company provides the following services:

- Air taxi.
- Tourist city tour bus service.
- Personnel transport services.
- Sea bus services from ports and airports to main ports.
- Car rental services.
- Call center for taxi services.

Currently the company has about 1079 bus fleet and it serves about 5.7 million passengers daily.
(İstanbul Otobüs official website, www.otobus.istanbul, T.D: 10.11.2018)

4.4.18 İston A.Ş.

İston, İstanbul Beton Elemanlari ve Hazır Beton Fabrikaları Sanayi ve Ticaret Anonim Şirketi (Istanbul Concrete Elements and Ready Mixed Concrete Factories Corporation) has been founded by Istanbul Metropolitan Municipality in 1986 to produce quality solutions to cities' needs for infra and super structure, the shareholders of the company are:

- İstanbul metropolitan municipality.
- İski.
- İETT.
- 11 local municipalities.

İston provides products and services to other cities of Turkey as well as Istanbul; also it exports to several countries in the world. İston carries out production of concrete and reinforced concrete pipes, paving stone, bordure, ready-mix

concrete, industrial prefabricated building elements, urban industrial structures, city furniture as well as contracting and project service.
İston products are available in all 81 cities in Turkey and in 36 countries around the world and now it is listed as one of the top 500 industrial enterprises in Turkey.
İston fulfils public responsibilities with a human-centered governance and service understanding, it improves its sector-wise competitive edge with a customer oriented, efficient and superior quality approach. İston carries on adding new urban structure components and elements to already more than 1000 products such as city furniture, kids' playground groups, cobble stone and Kerb, RPC products, concrete and reinforced concrete and ready mixed concrete.
(İston official website, www.iston.istanbul, T.D: 10.11.2018)

4.4.19 İsttelkom A.Ş.

İsttelkom, İstanbul Elektronik Haberleşme ve Altyapı Hizmetleri San. ve Tic. A.Ş. (Istanbul Electronic Communication and Infrastructure Services Inc.) was established on 19/10/2012 by IMM in order to meet the needs of Information Technologies and electronic communication services and to contribute to the solutions of telecommunication infrastructure problems, the shareholders of the company are:

- Istanbul metropolitan municipality.
- Belbim A.Ş.
- İstanbul Enerji A.Ş.
- İsbak A.Ş.

İsttelkom aims to facilitate the city life by providing the needs of the public and private sector in the field of Information Technology and communication with a social responsibility at national and international standards.
The need for fiber optic communication infrastructure is increasing day by day due to the increasing demand for rapid communication, and the new infrastructure investment requirements are needed forming. İsttelkom provides backbone network services to institutions and organizations for all kinds of electronic communications and fast internet communication by making fiber optic infrastructure investments that will meet the telecommunication needs of the future; it creates a sustainable competitive environment and creates diversity as well.
İsttelkom services and solutions are existed in different areas such as communication network infrastructure operation services, data centre solutions, radio services, IMM Wi-Fi services, internet of things services and smart city furniture.
(İsttelkom official website, www.isttelkom.istanbul, T.D: 25.11.2018)

4.4.20 İsyön A.Ş.

İsyön, İstanbul Yönetim Yenileme Anonim Şirketi (Istanbul Management Renewal Joint Stock Company) was called Istanbul İnşaat, Restorasyon, Madencilik, Sanayi ve Ticaret A.Ş. it has been founded in 1993 and on 31.03.2014 has become one of IMM companies and took its new name İstanbul Yönetim Yenileme Anonim Şirketi.

The company tries to reach to the world aquaculture market that can be traced from production to consumption and under quality assurance. Its mission is to provide added value to the sector with effective management of the changing conditions in the aquaculture sector and continuous development approach.

İsyön, which has signed many successful works in the fields of Construction, Restoration and Mining, has been operating the Gürpınar Fisheries Market which is the biggest facility of Europe as of 01 September 2015.

İsyön aims to make Gürpınar Fisheries State a new center of attraction in order to meet the expectations and needs of Istanbul residents with an area of 400,000,00 m ² with a capacity of 400 tons / day.

İsyön, a subsidiary company of Istanbul Metropolitan Municipality, fulfills its public responsibility with its 23 years of experience, technological equipment, people-oriented management and service understanding; will continue to increase its competitiveness in the sector with its approach based on productivity and quality principles.

(İsyön official website, www.isyon.istanbul, T.D: 25.11.2018)

4.4.21 Kiptaş A.Ş.

Kiptaş A.Ş. İstanbul Konut İmar Plan Sanayi ve Ticaret A.Ş. (Istanbul Public Housing Corporation), The Company has been established in 1987 under the name of İmar Weidleplan with a foreign capital partnership, its mission was to perform development plans and architectural projects concerning city, environment, and construction planning as well as architectural projects. It became one of IMM companies in 1994. The shareholders of the company are:

- Istanbul metropolitan municipality.
- İstanbul enerji A.Ş.
- İsfalt A.Ş.
- İston A.Ş.
- İstaç A.Ş.

Kiptaş aims to prevent the buildup of slum and shanty areas and the consequent decrease in public health standards; also it aims to prevent overpopulation and over construction, and to keep urban development under control in accordance with a planned development strategy.

As the number 1 public housing company in Turkey, Kiptaş produces safe, comfortable and spacious mass housing units, complete with all social facilities necessary for a well organized and well planned community.
(Kiptaş official website, www.kiptas.istanbul, T.D: 25.11.2018)

4.4.22 Kültür A.Ş.

Kültür A.Ş. (Istanbul Cultural and Artistic Products Corporation) has been founded on October 10, 1989. The shareholders of this company are:

- Istanbul metropolitan municipality.
- İstanbul halk ekmek A.Ş.
- Kartal halk ekmek A.Ş.
- İsbak A.Ş.
- İsfalt A.Ş.

Kültür aims to produce services and organize activities in the fields of culture, arts and tourism. It also aims to create a cultural atmosphere based on multiculturalism, civil and democratic participation. In accordance to this goal, Kültür A.Ş. has succeeded in attracting audience from all sectors of the society to its cultural events and activities.

Kültür operates many popular venues with high number of visitors and overall satisfaction in Istanbul such as Miniatürk, Panorama 1453 History Museum, Basilica and the Goodwill Cisterns along with these museums, Kültür A.Ş. also operates many cultural centers established by Istanbul Metropolitan Municipality in recent years, especially Cemal Reşit Rey Concert Hall.
(Kültür official website, www.kultur.istanbul, T.D: 25.11.2018)

4.4.23 Medya A.Ş.

İstanbul Dijital Medya Ticaret Anonim Şirketi or Medya A.Ş. has been founded in 2011 by Istanbul Metropolitan Municipality.
Medya A.Ş. communicates with Istanbul residents through its bus stops, fixed rackets, mega lights and digital screens which are located at various points of the city and reaches millions of city dwellers on roads, squares and transportation vehicles.
The company has screens at hundreds of places in Istanbul; it is a proprietorship company with news channel, radio and newspaper. Medya A.Ş. which owns the (.istanbul and .ist) domain extensions also serves Istanbul citizens as a digital media production and media planning company.
(Medya A.Ş. official website, www.medya.istanbul, T.D: 25.11.2018)

4.4.24 Metro Istanbul A.Ş.

Metro Istanbul company has been founded by IMM on 16.08.1988 under the name of İstanbul Ulaşım. The company operates the existing metro, tram, funicular and cable car lines in Istanbul, the shareholders of this company are:

- İstanbul metropolitan municipality.
- İETT.
- İspark A.Ş.
- İsbak A.Ş.
- İstek servis eğitim ticaret A.Ş.

With its 12 inner city rail system lines and total of 145 km, Metro Istanbul provides transportation services to more than 2 million passengers every day. Metro Istanbul becomes among the brands that are exemplified in the world with its service quality.

The T1 Bağcılar- Kabataş Tram Line, which was operated by Metro Istanbul, was selected as the best practice in the world in the field of meeting high passenger demand by the international bulk carriers association.

Metro Istanbul expects to reach 355 km rail lines by this year 2019 and about 1100 km after the year of 2019. (Metro A.Ş. official website, www.metro.istanbul, T.D: 03.12.2018)

4.4.25 Spor A.Ş.

Spor A.Ş. "İstanbul Spor Etkinlikleri ve İşletmeciliği Ticaret Anonim Şirketi" has been founded by IMM in 02.10.1989, the shareholders of the company are:

- Istanbul metropolitan municipality.
- İsfalt A.Ş.
- İsbak A.Ş.
- Halk ekmek A.Ş.
- İspark A.Ş.

Spor A.Ş. was established in order to provide services to improve physical and mental health, it aims to develop skills by encouraging participation in sports activities and to enable citizens of Istanbul to make use of sports facilities.

It is among the responsibilities of the company to build and operate the necessary sports facilities, for this purpose Spor A.Ş. has built 12 sports complexes with olympic standards in various sections of the city.

The company builds and operates all sorts of sports facilities (outdoor and indoor) and school sports in the field of physical education, gymnastics and other sports branches by organizing national and international competitions and granting awards.

Spor A.Ş. is proud to be a part of Turkey's achievements in sports; Istanbul has hosted various important international activities and meetings in areas of culture and art, politics and environment. In 2010, it has been chosen as European Capital of Culture and in 2012 it has been chosen as the European Capital of Sports. Its knowledge and organizational skills have been obtained from dozens of international organizations in various areas such as: chess, karate, basketball, volleyball, rowing, sailing, athletics and table tennis. (Spor A.Ş. official website, www.spor.istanbul, T.D: 03.12.2018)

4.4.26 Şehir hatlari turizm A.Ş.

In 2005, Şehir Hatları administration, which was under the umbrella of Turkey maritime organization was transferred to Istanbul metropolitan municipality by a decision of the high board of privatization and was the beginning of a new period in the company.

Şehir Hatlari A.Ş. represents an experience of 165 years, starting from the middle of the 19th century. This experience has accumulated from three different enterprises until the middle of 1940's, this is because independent enterprises used to conduct passenger transportation by ferries in the Bosphorus, Marmara Sea and the Golden horn from the middle of the 19th century until the mid of 1940.
In 2010, Şehir Hatları Administration became İstanbul Şehir Hatları Turizm San. Tic. A.Ş., the company aims to contribute maritime transportation in Istanbul and to find solutions to the traffic problems of the city. The company is also providing supplementary services related with transportation as well as the public transportation to the Bosphorus, Princes Islands and the golden horn.

Şehir Hatlari A.Ş. is a modern enterprise in urban maritime transportation in Istanbul, with a strong brand value and a great corporate reputation Şehir Hatlari offers an alternative transportation by providing public maritime transportation services, protecting the ferries, the shipyards and the quays that are symbols of our cultural heritage and it is favored leader enterprise in urban maritime transportation. (Şehir Hatlari A.Ş. official website, www.sehirhatlari.istanbul, T.D: 03.12.2018)

4.4.27 Güvensu A.Ş.

The company has been founded in 2016 by İstanbul Metropolitan Municipality, the company aims to research and operate geothermal resources and natural mineral water, as well as geothermal origin gases; manufacturing and wholesale-retail trading of water, soft drinks, mineral water and fizzy drinks. (IMM annual report, 2017: p46)

4.4.28 Ugetam A.Ş.

Ugetam Company was established in 1996, the shareholders of the company are:

- Istanbul metropolitan municipality.
- İston A.Ş.
- İstac A.Ş.
- İsfalt A.Ş.
- Halk ekmek A.Ş.
- Belbim A.Ş.

The company has become one of the leading companies in Turkey in education, documentation, testing and inspection services.
Ugetam provides technical support to local governments that have been institutionalized to meet the local quality of services and the principle of raising people's living conditions and quality.

Ugetam works in the following areas:

- Training and Certification.
- Test and Calibration.
- Product Certification.
- Inspection and Inspection.
- Projects and Applications.
- Renewable energy.

Ugetam has receiving successfully four certificates from the Turkish accreditation agency (TURKAK); Third party inspection service in Trans Anatolian Natural Gas Pipeline Project (TANAP), inspection and determination studies of natural gas distribution companies on behalf of the Energy Market Regulatory Authority (EPDK), first certification with the Vocational Qualifications Authority (FMC).
(Ugetam A.Ş. official website, www.ugetam.istanbul, T.D: 03.12.2018)

Table 4.8: IMM Companies and the Date of Their Foundation.

No.	The Company Name	Foundation Date
1.	Ağaç ve Peyzaj A.Ş.	1997
2.	Belbim A.Ş.	1987
3.	Beltur A.Ş.	1997
4.	Bimtaş A.Ş.	1997
5.	Boğaziçi Yönetim A.Ş.	1997
6.	Güvensu A.Ş.	2016
7.	Halk Ekmek A.Ş.	1978
8.	Hamidiye A.Ş.	1979
9.	İstanbul Enerji A.Ş.	1962
10.	İgdaş	1986
11.	İmar A.Ş.	1946
12.	İsbak A.Ş.	1986
13.	İsfalt A.Ş.	1986
14.	İstgüven A.S.	2016
15.	İspark A.Ş.	2005
16.	İsper A.Ş.	2009
17.	İstaç A.Ş.	1994
18.	İstanbul Otobüs A.Ş.	1997
19.	İston A.Ş.	1986
20.	İsttelkom A.Ş.	2012
21.	İsyön A.Ş.	1993
22.	Kiptas A.Ş.	1987
23.	Kultur A.Ş.	1989
24.	Medya A.Ş	2011
25.	Metro İstanbul A.Ş.	1988
26.	Spor A.Ş.	1989
27.	Şehir Hatlari A.Ş.	2005
28.	Ugetam A.Ş.	1996

(**Source**: Affiliates Coordination Directorate, 2016)

5. FINDINGS AND RESULTS

5.1 IMM's Companies Staff

Till the mid of the year 2018 IMM's companies they were employing about (28689). In 02.04.2018 and upon the decree law No. 696, IMM took a decision to consider another 21978 subcontractors as fulltime employees in its companies whom successfully completed the application, examination and security investigation processes.

Table 5.1: Total Number of Employees in IMM Companies.

Year	Total number of employees in IMM companies
2012	12789
2013	14713
2014	23284
2015	25135
2016	26374
2017	28689
2018	53481

(**Source**: Affiliates Coordination Directorate 2012 -2018)

The employees are divided on 7 different sectors as following:

Table 5.2: Total Number of Employees at Construction Sector of IMM Companies**.**

No	Sector	Name of the company	No. of employees
1	Construction	İmar A.Ş.	14
2		İston A.Ş.	946
3		İsfalt A.Ş.	345
4		Kiptaş A.Ş.	2490
5		Bimtas A.Ş.	403
		Total	**4198**

Table 5.3: Number of Employees at Services Sector of IMM Companies.

No	Sector	Name of the company	No. of employees
1	Services	Kültür A.Ş.	626
2		Spor A.Ş.	1449
3		Isper A.Ş.	3879
4		Isyön A.Ş.	168
5		Boğaziçi yönetim A.Ş.	110
6		Istgüven A.Ş.	2399
		Total	**8631**

Table 5.4: Number of Employees at Food and Drink Sector of IMM Companies.

No	Sector	Name of the company	No. of employees
1	Food & Drinks	Halk Ekmek A.Ş.	425
2		Hamidiye A.Ş.	271
3		Güvensu A.Ş.	116
4		Beltur A.Ş.	1245
		Total	**2057**

Table 5.5: Number of Employees at Transportation Sector of IMM Companies.

No	Sector	Name of the company	No. of employees
1	Transportation	Metro A.Ş.	2597
2		Otobüs A.Ş.	139
3		Şehir Hatlari A.Ş.	911
4		İspark A.Ş.	2062
		Total	**5709**

Table 5.6: Number of Employees at Information Technology Sector of IMM Companies.

No	Sector	Name of the company	No. of employees
1	Information Technology	Belbim A.Ş.	290
2		İsttelkom A.Ş.	58
3		İsbak A.Ş.	755
4		Medya A.Ş.	165
		Total	**1268**

Table 5.7: Number of Employees at Environment Sector of IMM Companies.

No	Sector	Name of the company	No. of employees
1	Environment	İstaç A.Ş	4018
2		Ağaç ve Payzaj A.Ş	416
		Total	**4434**

Table 5.8: Number of Employees at Energy Sector of IMM Companies

No	Sector	Name of the company	No. of employees
1		Enerji A.Ş	240
2	Energy	İgdaş A.Ş	2039
3		Ugetam A.Ş	113
	Total		**2392**

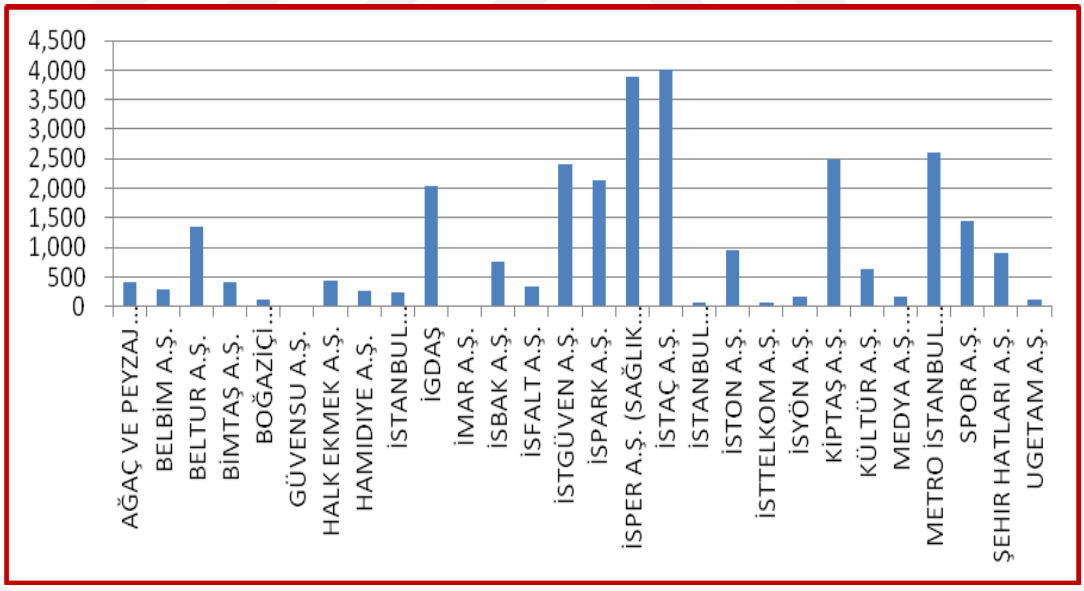

Figure 5.1: Distribution of Employees in IMM Companies.

5.2 IMM's Companies' Revenues

The annual revenues for some IMM companies make them on the best top 500 companies in Turkey upon the net sale basis and for many years. Following are the total income/outcome of IMM companies within 7 years:

Table 5.9: Annual Revenue and Expenditure for IMM's Companies.

Year	Revenue (TL)		Expenditures (TL)		
	Budget	Realization	Budget	Realization	Profit
2012	7,526,607,486	7,399,667,147	7,244,507,206	6,736,903,840	662,763,307
2013	9,500,424,706	9,000,385,585	8,939,338,692	9,449,989,726	678,092,134
2014	10,501,940,024	9,247,619,277	10,000,749,001	8,756,976,666	490,642,611
2015	11,373,237,991	12,093,108,863	10,601,651,266	10,744,815,225	1,348,293,638
2016	13,255,944,550	13,364,821,537	12,139,902,354	12,086,657,182	1,278,164,355
2017	15,253,338,878	15,361,251,321	14,427,314,653	13,977,501,560	1,383,749,761
2018	21,421,350,529	18,115,401,329	19,865,691,614	16,813,527,273	1,301,874,056

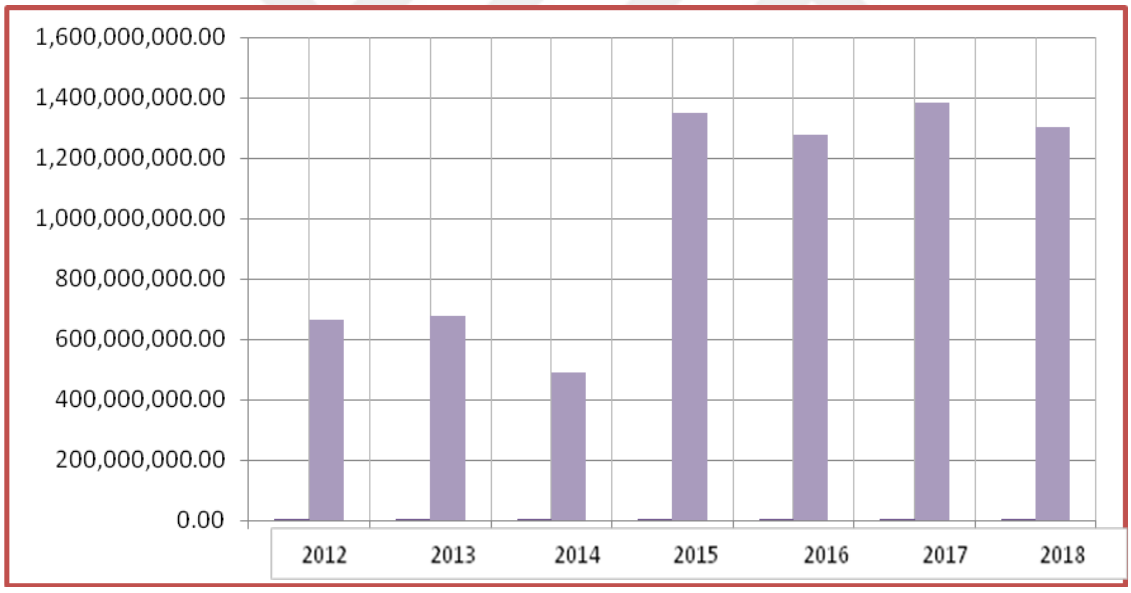

Figure 5.2: Total Yearly Profit of IMM's Companies' 2012-2018 (TL).

5.2.1 Total revenues and expenses upon company basis

Table 5.10: Revenues – Expenses for Ağaç ve Peyzaj Company 2012-2018.

	Ağaç ve Peyzaj A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	195,981,944	238,503,972	180,346,209	210,056,108	28,447,864
2013	330,347,513	395,632,830	239,405,567	238,048,298	157,584,532
2014	591,184,433	315,757,378	557,332,361	300,738,185	15,019,193
2015	405,632,542	512,265,070	382,763,533	457,126,915	55,138,155
2016	464,336,231	539,510,406	439,043,721	483,508,615	56,001,791
2017	691,221,423	773,795,895	645,045,325	678,713,588	95,082,307
2018	1,095,765,041	793,410,841	1,029,831,516	752,113,906	41,296,935
					448,570,777

Table 5.11: Revenues – Expenses for Belbim Company 2012-2018.

	Belbim A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	93,542,758	86,772,664	87,812,375	67,905,590	18,867,074
2013	125,745,232	89,142,922	91,040,384	68,603,089	20,539,833
2014	128,449,410	96,281,240	104,761,168	82,555,269	13,725,971
2015	202,391,646	103,459,184	145,346,240	96,341,051	7,118,133
2016	148,100,479	114,119,636	138,893,453	115,655,081	-1,535,445
2017	186,371,797	153,469,953	185,001,137	129,527,875	23,942,078
2018	289,771,502	158,299,462	224,389,531	126,900,825	31,398,637
					114,056,281

Table 5.12: Revenues – Expenses for Beltur Company 2012-2018.

	Beltur A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	83,480,447	66,361,955	82,970,447	66,080,808	281,147
2013	129,894,223	103,553,029	127,584,223	103,454,097	98,932
2014	143,181,477	142,945,064	142,426,071	142,245,551	699,513
2015	179,606,711	170,747,673	178,121,779	166,654,243	4,093,430
2016	195,361,961	183,248,791	193,310,961	182,037,713	1,211,078
2017	234,899,745	221,188,132	229,889,452	218,815,506	2,372,626
2018	279,736,291	264,464,260	276,436,144	264,333,699	130,561
					8,887,287

Table 5.13: Revenues – Expenses for Bimtaş Company 2012-2018.

	Bimtaş A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	56,679,396	24,103,253	56,150,911	41,536,699	-17,433,446
2013	63,476,291	42,286,723	62,347,292	44,002,371	-1,715,648
2014	58,884,811	28,382,506	57,940,816	40,061,622	-11,679,116
2015	57,848,260	66,814,985	55,498,797	64,903,442	1,911,543
2016	200,617,748	194,614,074	189,496,766	187,420,208	7,193,866
2017	252,943,029	270,012,980	242,057,655	255,347,337	14,665,643
2018	298,350,077	222,034,173	284,868,964	220,128,349	1,905,824
					-5,151,334

Table 5.14: Revenues – Expenses for Boğaziçi Yönetim Company 2012-2018.

	Boğaziçi Yönetim A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	6,591,318	7,762,982	5,588,476	6,518,707	1,244,275
2013	8,599,520	8,468,882	7,416,115	8,158,822	310,060
2014	9,085,523	9,562,928	8,476,637	9,042,700	520,228
2015	11,575,944	10,498,588	10,722,667	10,470,820	27,768
2016	12,352,057	11,921,578	12,247,670	11,733,816	187,762
2017	14,488,476	12,937,172	14,417,342	12,746,490	190,682
2018	290,673,732	217,354,030	268,956,461	215,718,085	1,635,945
					4,116,720

Table 5.15: Revenues – Expenses for Halk Ekmek Company 2012-2018.

	Halk Ekmek A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	137,880,166	156,129,697	122,868,688	134,215,253	21,914,444
2013	160,827,356	178,648,864	154,918,301	164,775,711	13,873,153
2014	188,733,797	194,341,858	181,588,963	181,441,366	12,900,492
2015	228,327,805	206,161,484	216,723,122	200,114,327	6,047,157
2016	247,715,892	229,537,559	230,207,530	211,236,169	18,301,390
2017	253,993,189	230,850,808	234,531,257	221,204,747	9,646,061
2018	263,288,435	279,753,177	247,310,268	265,473,841	14,279,336
					96,962,033

Table 5.16: Revenues – Expenses for Hamidiye Company 2012-2018.

	Hamidiye A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	59,396,203	66,639,350	57,450,645	66,260,574	378,776
2013	96,666,856	66,964,093	90,104,986	66,412,527	551,566
2014	93,843,347	89,046,844	90,209,165	86,546,720	2,500,124
2015	119,951,406	114,487,700	111,332,700	108,231,798	6,255,902
2016	132,556,114	122,848,402	124,992,074	107,958,708	14,889,694
2017	143,854,768	127,517,463	135,984,419	112,745,712	14,771,751
2018	197,372,740	153,199,491	182,893,237	147,492,574	5,706,917
					45,054,730

Table 5.17: Revenues – Expenses for İstanbul Enerji Company 2012-2018.

	İstanbul Enerji A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	130,838,607	122,816,052	122,701,085	114,308,758	8,507,294
2013	145,425,947	168,716,863	138,551,306	155,138,102	13,578,761
2014	160,702,085	214,385,683	150,319,850	192,054,819	22,330,864
2015	223,377,843	225,075,152	212,804,172	205,919,282	19,155,870
2016	246,738,601	247,175,398	232,359,264	233,488,605	13,686,793
2017	372,194,392	396,746,408	357,394,950	329,733,722	67,012,686
2018	407,756,067	470,526,214	389,052,310	442,268,753	28,257,461
					172,529,729

Table 5.18: Revenues – Expenses for İgdaş Company 2012-2018.

	İgdaş				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	4,108,255,798	4,305,927,601	3,958,522,816	3,904,432,618	401,494,983
2013	5,087,818,125	4,773,431,328	4,898,862,724	4,456,231,279	317,200,049
2014	5,359,954,101	5,030,780,181	5,082,459,066	4,701,479,592	329,300,589
2015	5,660,003,897	6,224,615,327	4,932,125,979	5,321,654,453	902,960,874
2016	5,954,800,053	6,114,277,190	5,333,336,544	5,485,818,856	628,458,334
2017	6,229,284,454	6,562,244,385	5,771,005,583	5,842,464,679	719,779,706
2018	8,867,084,313	7,421,035,585	7,954,459,804	6,755,383,879	665,651,706
					3,964,846,241

Table 5.19: Revenues – Expenses for İmar Company 2012-2018.

	İmar A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	19,047,825	4,247,210	3,651,693	1,708,620	2,538,590
2013	24,492,862	4,480,277	4,476,495	1,743,309	2,736,968
2014	24,691,311	5,192,264	23,756,980	2,112,536	3,079,728
2015	28,170,256	5,815,644	27,243,602	2,306,109	3,509,535
2016	30,648,756	6,154,283	30,291,520	4,207,335	1,946,948
2017	59,014,042	16,438,632	33,689,561	4,981,957	11,456,675
2018	160,852,995	20,584,493	94,596,012	16,220,225	4,364,268
					29,632,712

Table 5.20: Revenues – Expenses for İsbak Company 2012-2018.

	İsbak A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	86,730,000	84,304,141	84,696,593	81,797,793	2,506,348
2013	92,740,000	101,123,106	90,309,195	100,073,000	1,050,106
2014	118,229,258	122,840,513	115,464,051	122,233,315	607,198
2015	171,396,000	177,195,235	168,550,967	174,791,349	2,403,886
2016	275,950,000	267,208,530	271,869,674	262,001,193	5,207,337
2017	478,105,000	458,220,649	473,119,366	452,435,135	5,785,514
2018	652,952,791	459,237,833	646,131,363	436,737,833	22,500,000
					40,060,389

Table 5.21: Revenues – Expenses for İsfalt Company 2012-2018.

	İsfalt A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	157,735,949	66,853,410	146,529,343	64,590,684	2,262,726
2013	538,412,346	606,657,239	500,996,545	604,818,883	1,838,356
2014	379,427,326	77,046,888	375,694,830	90,615,116	-13,568,228
2015	273,440,180	329,570,980	285,597,638	285,550,209	44,020,771
2016	466,229,215	426,012,394	449,869,439	378,721,677	47,290,717
2017	370,501,761	248,942,676	349,167,029	208,317,283	40,625,393
2018	714,495,512	566,879,599	681,916,455	564,994,191	1,885,408
					124,355,143

Table 5.22: Revenues – Expenses for İstgüven Company 2017-2018.

	İstgüven A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	-	-	-	-	-
2013	-	-	-	-	-
2014	-	-	-	-	-
2015	-	-	-	-	-
2016	-	-	-	-	-
2017	52,352,450	50,651,203	50,150,380	49,382,240	1,268,963
2018	561,602,901	559,206,828	554,837,551	545,077,089	14,129,739
					15,398,702

Table 5.23: Revenues – Expenses for İspark Company 2012-2018.

	İspark A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	125,756,939	113,177,992	123,565,178	111,343,733	1,834,259
2013	159,650,665	165,617,508	158,894,504	155,377,393	10,240,115
2014	185,866,179	204,143,972	185,826,779	202,069,325	2,074,647
2015	224,863,520	239,052,380	223,475,820	238,113,878	938,502
2016	264,406,103	272,835,395	263,109,118	269,727,688	3,107,707
2017	304,378,792	318,210,943	300,701,824	303,618,574	14,592,369
2018	370,016,336	357,665,799	358,891,417	353,239,625	4,426,174
					37,213,773

Table 5.24: Revenues – Expenses for İsper Company 2012-2018.

	İsper A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	148,108,656	129,983,978	144,847,700	126,456,161	3,527,817
2013	179,175,515	156,478,558	175,875,449	152,652,820	3,825,738
2014	207,856,358	182,292,708	204,497,398	182,180,792	111,916
2015	247,280,037	231,912,505	244,952,542	239,638,803	-7,726,298
2016	375,956,164	295,772,678	373,809,387	295,403,091	369,587
2017	400,476,551	376,280,176	388,846,178	366,955,361	9,324,815
2018	1,060,354,291	895,995,844	1,032,447,508	868,555,275	27,440,569
					36,874,144

Table 5.25: Revenues – Expenses for İstaç Company 2012-2018.

	İstaç A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	277,920,065	359,831,238	274,788,043	295,331,825	64,499,413
2013	389,395,015	356,949,312	352,188,500	336,141,835	20,807,477
2014	413,487,200	443,879,185	401,708,965	437,813,404	6,065,781
2015	615,236	614,693,820	605,555,108	613,344,087	1,349,733
2016	726,249,513	677,710,379	725,998,874	663,324,022	14,386,357
2017	890,030,520	950,022,320	873,584,509	795,871,476	154,150,844
2018	1,111,545,475	1,112,979,765	953,632,942	910,212,481	202,767,284
					464,026,889

Table 5.26: Revenues – Expenses for İstanbul Otobüs Company 2012-2018.

	İstanbul Otobüs A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	343,194,540	149,279,511	319,505,110	130,420,097	18,859,414
2013	414,069,286	257,582,776	371,265,911	228,758,204	28,824,572
2014	426,171,245	338,830,124	425,611,571	331,203,626	7,626,498
2015	422,674,081	348,085,227	416,613,973	336,438,646	11,646,581
2016	400,421,878	360,573,641	391,153,490	342,222,464	18,351,177
2017	1,030,846,740	374,595,567	1,001,653,012	372,429,140	2,166,427
2018	463,677,846	442,012,313	459,572,139	438,595,376	3,416,937
					90,891,606

Table 5.27: Revenues – Expenses for İston Company 2012-2018.

	İston A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	339,845,854	275,532,996	312,196,933	247,702,405	27,830,591
2013	358,435,169	342,236,507	341,742,443	323,834,976	18,401,531
2014	421,068,111	300,332,501	415,378,666	287,867,526	12,464,975
2015	300,603,819	480,274,316	294,458,619	440,701,874	39,572,442
2016	372,629,730	260,343,472	358,518,390	255,179,613	5,163,859
2017	330,318,000	345,342,288	320,334,261	334,237,121	11,105,167
2018	513,219,018	519,262,503	501,917,324	493,742,370	25,520,133
					140,058,698

Table 5.28: Revenues – Expenses for İsttelkom Company 2012-2018.

	İsttelkom A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	-	-	-	-	-
2013	-	-	-	-	-
2014	-	1,018,242	-	301,545	716,697
2015	5,058,600	1,800,036	4,545,770	1,284,746	515,290
2016	27,978,000	31,885,754	18,967,360	23,334,953	8,550,801
2017	155,547,000	120,213,548	149,253,303	78,654,525	41,559,023
2018	151,312,000	101,609,242	147,138,061	78,394,581	23,214,661
					74,556,472

Table 5.29: Revenues – Expenses for İsyön Company 2012-2018.

	İsyön A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	-	-	-	-	-
2013	-	-	-	-	-
2014	-	22,599,846	-	21,988,764	611,082
2015	41,794,351	14,115,806	36,121,869	14,038,931	76,875
2016	36,000,000	23,629,050	35,567,990	23,048,485	580,565
2017	43,002,000	25,109,370	42,739,750	24,937,370	172,000
2018	44,230,000	43,930,872	44,082,000	43,660,872	270,000
					1,710,522

Table 5.30: Revenues – Expenses for Kiptaş Company 2012-2018.

	Kiptaş A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	418,041,915	464,512,492	398,932,671	365,526,091	98,986,401
2013	369,552,585	357,838,463	270,374,637	276,739,522	81,098,941
2014	626,901,478	349,101,394	499,204,924	323,141,192	25,960,202
2015	1,260,752,433	718,660,097	804,848,430	500,446,461	218,213,636
2016	927,876,027	1,444,700,182	660,045,016	1,071,703,908	372,996,274
2017	743,048,541	1,454,662,819	705,701,491	1,370,580,641	84,082,178
2018	1,267,863,377	760,776,602	1,208,867,530	672,811,429	87,965,173
					969,302,805

Table 5.31: Revenues – Expenses for Kültür Company 2012-2018.

	Kültür A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	114,230,758	116,962,318	99,583,297	112,976,294	3,986,024
2013	123,340,785	134,576,738	120,764,108	128,352,023	6224715
2014	178,494,501	208,072,009	173,509,079	196,766,589	11,305,420
2015	282,231,322	277,557,389	264,461,674	262,253,097	15,304,292
2016	436,138,309	406,930,958	412,213,135	393,099,080	13,831,878
2017	583,452,597	533,656,658	550,070,437	501,452,704	32,203,954
2018	615,753,131	637,491,143	602,927,633	571,985,734	65,505,409
					148,361,692

Table 5.32: Revenues – Expenses for Medya Company 2012-2018.

	Medya A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	7,624,000	4,281,161	7,599,994	4,881,985	-600,824
2013	15,590,600	5,085,280	15,356,319	6,240,933	-1,155,653
2014	19,601,000	8,915,545	17,924,991	8,929,575	-14,030
2015	17,834,210	14,976,948	16,833,479	11,305,265	3,671,683
2016	42,192,532	34,918,400	37,089,799	25,539,429	9,378,971
2017	95,288,250	47,397,165	66,260,452	46,457,616	939,549
2018	71,636,793	95,712,341	70,623,531	94,811,262	901,079
					13,120,775

Table 5.33: Revenues – Expenses for Metro İstanbul Company 2012-2018.

	Metro İstanbul A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	436,846,012	405,844,766	428,330,565	388,190,228	17,654,538
2013	506,165,724	502,811,031	505,255,709	496,334,036	6,476,995
2014	575,223,975	662,971,392	564,082,851	588,760,117	74,211,275
2015	749,093,285	763,025,266	683,197,944	726,185,721	36,839,545
2016	905,548,750	775,180,931	865,693,843	750,984,164	24,196,767
2017	918,254,178	870,385,787	902,249,017	864,611,917	5,773,870
2018	1,068,088,675	994,893,751	1,054,570,849	990,229,496	4,664,255
					169,817,245

Table 5.34: Revenues – Expenses for Spor Company 2012-2018.

	Spor A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	76,241,482	63,552,471	95,747,857	80,740,327	-17,187,856
2013	74,625,500	76,388,596	95,625,500	87,948,288	-11,559,692
2014	103,639,000	107,550,615	114,052,235	105,820,574	1,730,041
2015	143,566,000	138,826,875	140,601,000	128,682,411	10,144,464
2016	179,874,000	162,835,422	179,637,000	162,811,166	24,256
2017	207,802,000	206,695,287	207,077,000	206,648,759	46,528
2018	328,169,084	296,022,897	326,393,606	285,044,954	10,977,943
					-5,824,316

Table 5.35: Revenues – Expenses for Şehir Hatlari Company 2012-2018.

	Şehir Hatlari A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	84,576,854	75,801,692	112,142,919	103,861,242	-28,059,550
2013	88,817,591	83,005,051	109,138,695	100,524,326	-17,519,275
2014	64,104,098	79,037,121	85,868,910	107,001,209	-27,964,088
2015	97,988,607	82,031,381	122,310,059	120,865,519	-38,834,138
2016	160,546,437	137,811,907	150,644,036	123,427,287	14,384,620
2017	171,665,783	184,084,898	160,425,627	163,134,727	20,950,171
2018	216,146,029	215,894,414	212,446,652	208,158,458	7,735,956
					-69,306,304

Table 5.36: Revenues – Expenses for Ugetam Company 2012-2018.

	Ugetam A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	18,060,000	10,484,245	17,977,658	10,061,240	423,005
2013	17,160,000	22,709,609	16,843,784	17,929,607	4,780,002
2014	23,160,000	12,311,276	22,652,674	12,005,637	305,639
2015	17,160,000	21,389,795	16,843,783	17,451,788	3,938,007
2016	24,720,000	23,065,127	21,536,300	23,063,856	1,271
2017	40,003,400	31,578,139	36,964,336	31,495,358	82,781
2018	55,291,077	50,908,000	52,617,306	47,272,000	3,636,000
					13,166,705

Table 5.37: Revenues – Expenses for Güvensu Company 2018.

	Güvensu A.Ş.				
	Revenues (TL)		Expenses (TL)		
Year	Budgeted	Realized	Budgeted	Realized	Profit (TL)
2012	-	-	-	-	-
2013	-	-	-	-	-
2014	-	-	-	-	-
2015	-	-	-	-	-
2016	-	-	-	-	-
2017	-	-	-	-	-
2018	4,345,000	4,259,857	3,883,500	3,970,111	289,746
					289,746

5.2.2 Total revenues and expenses upon year basis

Table 5.38: Revenues – Expenses for IMM Companies | 2012.

No.	Company Name	Revenues (TL)		Expenses (TL)		Year 2012
		Budgeted	Realized	Budgeted	Realized	Profit
1	Ağaç ve Peyzaj	195,981,944	238,503,972	180,346,209	210,056,108	28,447,864
2	Belbim	93,542,758	86,772,664	87,812,375	67,905,590	18,867,074
3	Beltur	83,480,447	66,361,955	82,970,447	66,080,808	281,147
4	Bimtas	56,679,396	24,103,253	56,150,911	41,563,699	(-17,433,446)
5	Boğaziçi Yönetim	6,591,318	7,762,982	5,588,476	6,518,707	1,244,275
6	Halk Ekmek	137,880,166	156,129,697	122,868,688	134,215,253	21,914,444
7	Hamidiye	59,396,203	66,639,350	57,450,645	66,260,574	378,776
8	İstanbul Enerji	130,838,607	122,816,052	122,701,085	114,308,758	8,507,294
9	İgdaş	4,108,255,798	4,305,927,601	3,958,522,816	3,904,432,618	401,494,983
10	İmar	19,047,825	4,247,210	3,651,693	1,708,620	2,538,590
11	İsbak	86,730,000	84,304,141	84,696,593	81,797,793	2,506,348
12	İsfalt	157,735,949	66,853,410	146,529,343	64,590,684	2,262,726
13	İspark	125,756,939	113,177,992	123,565,178	111,343,733	1,834,259
14	İsper (Sağlik)	148,108,656	129,983,978	144,847,700	126,456,161	3,527,817
15	İstaç	277,920,065	359,831,238	274,788,043	295,331,825	64,499,413
16	İstanbul Otobüs	343,194,540	149,279,511	319,505,110	130,420,097	18,859,414
17	İston	339,845,854	275,532,996	312,196,933	247,702,405	27,830,591
18	Kiptaş	418,041,915	464,512,492	398,932,671	365,526,091	98,986,401
19	Kültür	114,230,758	116,962,318	99,583,297	112,976,294	3,986,024
20	Medya (İstime)	7,624,000	4,281,161	7,599,994	4,881,985	(-600,824)
21	Metro İstanbul	436,846,012	405,844,766	428,330,565	388,190,228	17,654,538
22	Spor	76,241,482	63,552,471	95,747,857	80,740,327	(-17,187,856)
23	Şehir Hatlari	84,576,854	75,801,692	112,142,919	103,861,242	(-28,059,550)
24	Ugetam	18,060,000	10,484,245	17,977,658	10,061,240	423,005
	Total	**7,526,607,486**	**7,399,667,147**	**7,244,507,206**	**6,736,903,840**	**662,763,307**

Table 5.39: Revenues – Expenses for IMM Companies | 2013.

No.	Company Name	Revenues (TL)		Expenses (TL)		Year 2013
		Budgeted	Realized	Budgeted	Realized	Profit
1	Ağaç ve Peyzaj	330,347,513	395,632,830	239,405,567	238,048,298	157,584,532
2	Belbim	125,745,232	89,142,922	91,040,384	68,603,089	20,539,833
3	Beltur	129,894,223	103,553,029	127,584,223	103,454,097	98,932
4	Bimtaş	63,476,291	42,286,723	62,347,292	44,002,371	(-1,715,648)
5	Boğaziçi Yönetim	8,599,520	8,468,882	7,416,115	8,158,822	310,060
6	Halk Ekmek	160,827,356	178,648,864	154,918,301	164,775,711	13,873,153
7	Hamidiye	96,666,856	66,964,093	90,104,986	66,412,527	551,566
8	İstanbul Enerji	145,425,947	168,716,863	138,551,306	155,138,102	13,578,761
9	İgdaş	5,087,818,125	4,773,431,328	4,898,862,724	4,456,231,279	317,200,049
10	İmar	24,492,862	4,480,277	4,476,495	1,743,309	2,736,968
11	İsbak	92,740,000	101,123,106	90,309,195	100,073,000	1,050,106
12	İsfalt	538,412,346	606,657,239	500,996,545	604,818,883	1,838,356
13	İspark	159,650,665	165,617,508	158,894,504	155,377,393	10,240,115
14	İsper (Sağlik)	179,175,515	156,478,558	175,875,449	152,652,820	3,825,738
15	İstaç	389,395,015	356,949,312	352,188,500	336,141,835	20,807,477
16	İstanbul Otobüs	414,069,286	257,582,776	371,265,911	228,758,204	28,824,572
17	İston	358,435,169	342,236,507	341,742,443	323,834,976	18,401,531
18	Kiptaş	369,552,585	357,838,463	270,374,637	276,739,522	81,098,941
19	Kültür	123,340,785	134,576,738	120,764,108	128,352,023	6,224,715
20	Medya	15,590,600	5,085,280	15,356,319	6,240,933	(-1,155,653)
21	Metro İstanbul	506,165,724	502,811,031	505,255,709	496,334,036	6,476,995
22	Spor	74,625,500	76,388,596	95,625,500	87,948,288	(-11,559,692)
23	Şehir Hatlari	88,817,591	83,005,051	109,138,695	100,524,326	(-17,519,275)
24	Ugetam	17,160,000	22,709,609	16,843,784	17,929,607	4,780,002
	Total	**9,500,424,706**	**9,000,385,585**	**8,939,338,692**	**9,449,989,726**	**678,092,134**

Table 5.40: Revenues – Expenses for IMM Companies | 2014.

No.	Company Name	Revenues (TL)		Expenses (TL)		Year 2014
		Budgeted	Realized	Budgeted	Realized	Profit
1	Ağaç ve Peyzaj	591,184,433	315,757,378	557,332,361	300,738,185	15,019,193
2	Belbim	128,449,410	96,281,240	104,761,168	82,555,269	13,725,971
3	Beltur	143,181,477	142,945,064	142,426,071	142,245,551	699,513
4	Bimtaş	58,884,811	28,382,506	57,940,816	40,061,622	(-11,679,116)
5	Boğaziçi Yönetim	9,085,523	9,562,928	8,476,637	9,042,700	520,228
6	Halk Ekmek	188,733,797	194,341,858	181,588,963	181,441,366	12,900,492
7	Hamidiye	93,843,347	89,046,844	90,209,165	86,546,720	2,500,124
8	İst. Enerji	160,702,085	214,385,683	150,319,850	192,054,819	22,330,864
9	İgdaş	5,359,954,101	5,030,780,181	5,082,459,066	4,701,479,592	329,300,589
10	İmar	24,691,311	5,192,264	23,756,980	2,112,536	3,079,728
11	İsbak	118,229,258	122,840,513	115,464,051	122,233,315	607,198
12	İsfalt	379,427,326	77,046,888	375,694,830	90,615,116	(-13,568,228)
13	İspark	185,866,179	204,143,972	185,826,779	202,069,325	2,074,647
14	İsper (Sağlik)	207,856,358	182,292,708	204,497,398	182,180,792	111,916
15	İstaç	413,487,200	443,879,185	401,708,965	437,813,404	6,065,781
16	İst. Otobüs	426,171,245	338,830,124	425,611,571	331,203,626	7,626,498
17	İston	421,068,111	300,332,501	415,378,666	287,867,526	12,464,975
18	İsttelkom	-	1,018,242	-	301,545	716,697
19	İsyön	-	22,599,846	-	21,988,764	611,082
20	Kiptaş	626,901,478	349,101,394	499,204,924	323,141,192	25,960,202
21	Kültür	178,494,501	208,072,009	173,509,079	196,766,589	11,305,420
22	Medya	19,601,000	8,915,545	17,924,991	8,929,575	(-14,030)
23	Metro	575,223,975	662,971,392	564,082,851	588,760,117	74,211,275
24	Spor	103,639,000	107,550,615	114,052,235	105,820,574	1,730,041
25	Şehir Hatlari	64,104,098	79,037,121	85,868,910	107,001,209	(-27,964,088)
26	Ugetam	23,160,000	12,311,276	22,652,674	12,005,637	305,639
	Total	**10,501,940,023**	**9,247,619,277**	**10,000,749,001**	**8,756,976,666**	**490,642,611**

Table 5.41: Revenues – Expenses for IMM Companies | 2015.

No.	Company Name	Revenues (TL)		Expenses (TL)		Year 2015
		Budgeted	Realized	Budgeted	Realized	Profit
1	Ağaç ve Peyzaj	405,632,542	512,265,070	382,763,533	457,126,915	55,138,155
2	Belbim	202,391,646	103,459,184	145,346,240	96,341,051	7,118,133
3	Beltur	179,606,711	170,747,673	178,121,779	166,654,243	4,093,430
4	Bimtaş	57,848,260	66,814,985	55,498,797	64,903,442	1,911,543
5	Boğaziçi Yönetim	11,575,944	10,498,588	10,722,667	10,470,820	27,768
6	Halk Ekmek	228,327,805	206,161,484	216,723,122	200,114,327	6,047,157
7	Hamidiye	119,951,406	114,487,700	111,332,700	108,231,798	6,255,902
8	İ. Enerji	223,377,843	225,075,152	212,804,172	205,919,282	19,155,870
9	İgdaş	5,660,003,897	6,224,615,327	4,932,125,979	5,321,654,453	902,960,874
10	İmar	28,170,256	5,815,644	27,243,602	2,306,109	3,509,535
11	İsbak	171,396,000	177,195,235	168,550,967	174,791,349	2,403,886
12	İsfalt	273,440,180	329,570,980	285,597,638	285,550,209	44,020,771
13	İspark	224,863,520	239,052,380	223,475,820	238,113,878	938,502
14	İsper	247,280,037	231,912,505	244,952,542	239,638,803	(-7,726,298)
15	İstaç	615,236	614,693,820	605,555,108	613,344,087	1,349,733
16	İ.Otobüs	422,674,081	348,085,227	416,613,973	336,438,646	11,646,581
17	İston	300,603,819	480,274,316	294,458,619	440,701,874	39,572,442
18	İsttelkom	5,058,600	1,800,036	4,545,770	1,284,746	515,290
19	İsyön	41,794,351	14,115,806	36,121,869	14,038,931	76,875
20	Kiptaş	1,260,752,433	718,660,097	804,848,430	500,446,461	218,213,636
21	Kültür	282,231,322	277,557,389	264,461,674	262,253,097	15,304,292
22	Medya	17,834,210	14,976,948	16,833,479	11,305,265	3,671,683
23	Metro	749,093,285	763,025,266	683,197,944	726,185,721	36,839,545
24	Spor	143,566,000	138,826,875	140,601,000	128,682,411	10,144,464
25	Şehir Hatlari	97,988,607	82,031,381	122,310,059	120,865,519	(-38,834,138)
26	Ugetam	17,160,000	21,389,795	16,843,783	17,451,788	3,938,007
	Total	**11,373,237,991**	**12,093,108,863**	**10,601,651,266**	**10,744,815,225**	**1,348,293,638**

Table 5.42: Revenues – Expenses for IMM Companies | 2016.

No.	Company Name	Revenues (TL)		Expenses (TL)		Year 2016
		Budgeted	Realized	Budgeted	Realized	Profit
1	Ağaç ve Peyzaj	464,336,231	539,510,406	439,043,721	483,508,615	56,001,791
2	Belbim	148,100,479	114,119,636	138,893,453	115,655,081	(-1,535,445)
3	Beltur	195,361,961	183,248,791	193,310,961	182,037,713	1,211,078
4	Bimtaş	200,617,748	194,614,074	189,496,766	187,420,208	7,193,866
5	Boğaziçi Yönetim	12,352,057	11,921,578	12,247,670	11,733,816	187,762
6	Halk Ekmek	247,715,892	229,537,559	230,207,530	211,236,169	18,301,390
7	Hamidiye	132,556,114	122,848,402	124,992,074	107,958,708	14,889,694
8	İ. Enerji	246,738,601	247,175,398	232,359,264	233,488,605	13,686,793
9	İgdaş	5,954,800,053	6,114,277,190	5,333,336,544	5,485,818,856	628,458,334
10	İmar	30,648,756	6,154,283	30,291,520	4,207,335	1,946,948
11	İsbak	275,950,000	267,208,530	271,869,674	262,001,193	5,207,337
12	İsfalt	466,229,215	426,012,394	449,869,439	378,721,677	47,290,717
13	İspark	264,406,103	272,835,395	263,109,118	269,727,688	3,107,707
14	İsper	375,956,164	295,772,678	373,809,387	295,403,091	369,587
15	İstaç	726,249,513	677,710,379	725,998,874	663,324,022	14,386,357
16	Otobüs	400,421,878	360,573,641	391,153,490	342,222,464	18,351,177
17	İston	372,629,730	260,343,472	358,518,390	255,179,613	5,163,859
18	İsttelkom	27,978,000	31,885,754	18,967,360	23,334,953	8,550,801
19	İsyön	36,000,000	23,629,050	35,567,990	23,048,485	580,565
20	Kiptaş	927,876,027	1,444,700,182	660,045,016	1,071,703,908	372,996,274
21	Kültür	436,138,309	406,930,958	412,213,135	393,099,080	13,831,878
22	Medya	42,192,532	34,918,400	37,089,799	25,539,429	9,378,971
23	Metro İstanbul	905,548,750	775,180,931	865,693,843	750,984,164	24,196,767
24	Spor	179,874,000	162,835,422	179,637,000	162,811,166	24,256
25	Şehir Hatlari	160,546,437	137,811,907	150,644,036	123,427,287	14,384,620
26	Ugetam	24,720,000	23,065,127	21,536,300	23,063,856	1,271
	Total	**13,255,944,550**	**13,364,821,537**	**12,139,902,354**	**12,086,657,182**	**1,278,164,355**

Table 5.43: Revenues – Expenses for IMM Companies | 2017.

No.	Company Name	Revenues (TL)		Expenses (TL)		Year 2017
		Budgeted	Realized	Budgeted	Realized	Profit
1	Ağaç ve Peyzaj	691,221,423	773,795,895	645,045,325	678,713,588	95,082,307
2	Belbim	186,371,797	153,469,953	185,001,137	129,527,875	23,942,078
3	Beltur	234,899,745	221,188,132	229,889,452	218,815,506	2,372,626
4	Bimtaş	252,943,029	270,012,980	242,057,655	255,347,337	14,665,643
5	Boğaziçi Yönetim	14,488,476	12,937,172	14,417,342	12,746,490	190,682
6	Güvensu	-	-	-	-	-
7	Halk Ekmek	253,993,189	230,850,808	234,531,257	221,204,747	9,646,061
8	Hamidiye	143,854,768	127,517,463	135,984,419	112,745,712	14,771,751
9	İst.Enerji	372,194,392	396,746,408	357,394,950	329,733,722	67,012,686
10	İgdaş	6,229,284,454	6,562,244,385	5,771,005,583	5,842,464,679	719,779,706
11	İmar	59,014,042	16,438,632	33,689,561	4,981,957	11,456,675
12	İsbak	478,105,000	458,220,649	473,119,366	452,435,135	5,785,514
13	İsfalt	370,501,761	248,942,676	349,167,029	208,317,283	40,625,393
14	İstgüven	52,352,450	50,651,203	50,150,380	49,382,240	1,268,963
15	İspark	304,378,792	318,210,943	300,701,824	303,618,574	14,592,369
16	İsper	400,476,551	376,280,176	388,846,178	366,955,361	9,324,815
17	İstaç	890,030,520	950,022,320	873,584,509	795,871,476	154,150,844
18	Otobüs	1,030,846,740	374,595,567	1,001,653,012	372,429,140	2,166,427
19	İston	330,318,000	345,342,288	320,334,261	334,237,121	11,105,167
20	İsttelkom	155,547,000	120,213,548	149,253,303	78,654,525	41,559,023
21	İsyön	43,002,000	25,109,370	42,739,750	24,937,370	172,000
22	Kiptaş	743,048,541	1,454,662,819	705,701,491	1,370,580,641	84,082,178
23	Kültür	583,452,597	533,656,658	550,070,437	501,452,704	32,203,954
24	Medya	95,288,250	47,397,165	66,260,452	46,457,616	939,549
25	Metro	918,254,178	870,385,787	902,249,017	864,611,917	5,773,870
26	Spor	207,802,000	206,695,287	207,077,000	206,648,759	46,528
27	Şehir Hatlari	171,665,783	184,084,898	160,425,627	163,134,727	20,950,171
28	Ugetam	40,003,400	31,578,139	36,964,336	31,495,358	82,781
	Total	**15,253,338,878**	**15,361,251,321**	**14,427,314,653**	**13,977,501,560**	**1,383,749,761**

Table 5.44: Revenues – Expenses for IMM Companies | 2018.

No.	Company Name	Revenues (TL)		Expenses (TL)		Year 2018
		Budgeted	Realized	Budgeted	Realized	Profit
1	Ağaç ve Peyzaj	1,095,765,041	793,410,841	1,029,831,516	752,113,906	41,296,935
2	Belbim	289,771,502	158,299,462	224,389,531	126,900,825	31,398,637
3	Beltur	279,736,291	264,464,260	276,436,144	264,333,699	130,561
4	Bimtaş	298,350,077	222,034,173	284,868,964	220,128,349	1,905,824
5	Boğaziçi Yönetim	290,673,732	217,354,030	268,956,461	215,718,085	1,635,945
6	Güvensu	4,345,000	4,259,857	3,883,500	3,970,111	289,746
7	Halk Ekmek	263,288,435	279,753,177	247,310,268	265,473,841	14,279,336
8	Hamidiye	197,372,740	153,199,491	182,893,237	147,492,574	5,706,917
9	İs. Enerji	407,756,067	470,526,214	389,052,310	442,268,753	28,257,461
10	İgdaş	8,867,084,313	7,421,035,585	7,954,459,804	6,755,383,879	665,651,706
11	İmar	160,852,995	20,584,493	94,596,012	16,220,225	4,364,268
12	İsbak	652,952,791	459,237,833	646,131,363	436,737,833	22,500,000
13	İsfalt	714,495,512	566,879,599	681,916,455	564,994,191	1,885,408
14	İstgüven	561,602,901	559,206,828	554,837,551	545,077,089	14,129,739
15	İspark	370,016,336	357,665,799	358,891,417	353,239,625	4,426,174
16	İsper	1,060,354,291	895,995,844	1,032,447,508	868,555,275	27,440,569
17	İstaç	1,111,545,475	1,112,979,765	953,632,942	910,212,481	202,767,284
18	İs.Otobüs	463,677,846	442,012,313	459,572,139	438,595,376	3,416,937
19	İston	513,219,018	519,262,503	501,917,324	493,742,370	25,520,133
20	İsttelkom	151,312,000	101,609,242	147,138,061	78,394,581	23,214,661
21	İsyön	44,230,000	43,930,872	44,082,000	43,660,872	270,000
22	Kiptaş	1,267,863,377	760,776,602	1,208,867,530	672,811,429	87,965,173
23	Kültür	615,753,131	637,491,143	602,927,633	571,985,734	65,505,409
24	Medya	71,636,793	95,712,341	70,623,531	94,811,262	901,079
25	Metro	1,068,088,675	994,893,751	1,054,570,849	990,229,496	4,664,255
26	Spor	328,169,084	296,022,897	326,393,606	285,044,954	10,977,943
27	Şehir Hatlari	216,146,029	215,894,414	212,446,652	208,158,458	7,735,956
28	Ugetam	55,291,077	50,908,000	52,617,306	47,272,000	3,636,000
	Total	**21,421,350,529**	**18,115,401,329**	**19,865,691,614**	**16,813,527,273**	**1,301,874,056**

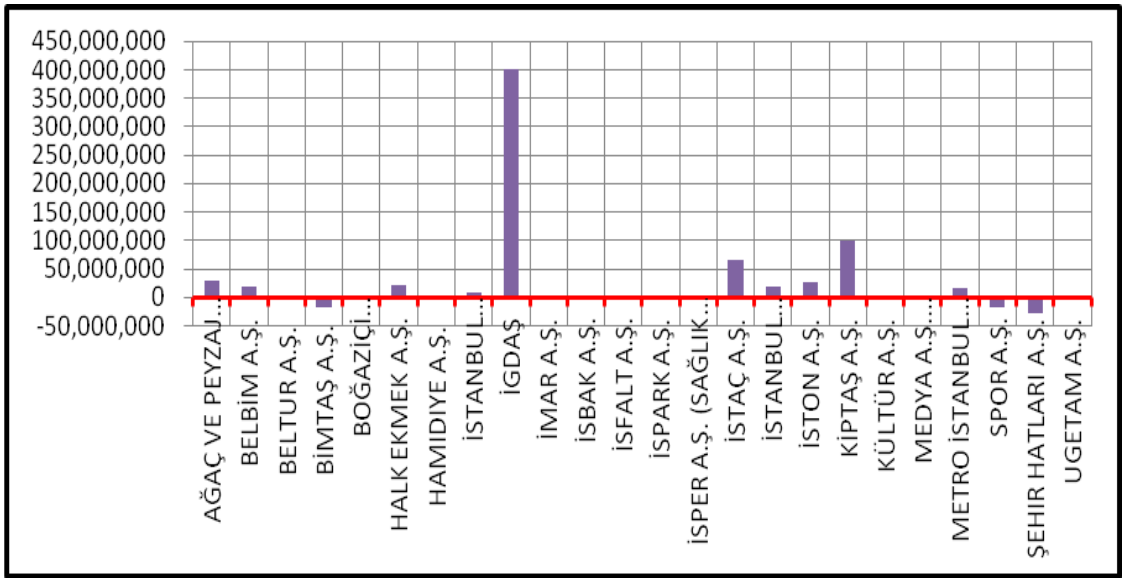

Figure 5.3: Total Profits of IMM's Companies (TL) | 2012.

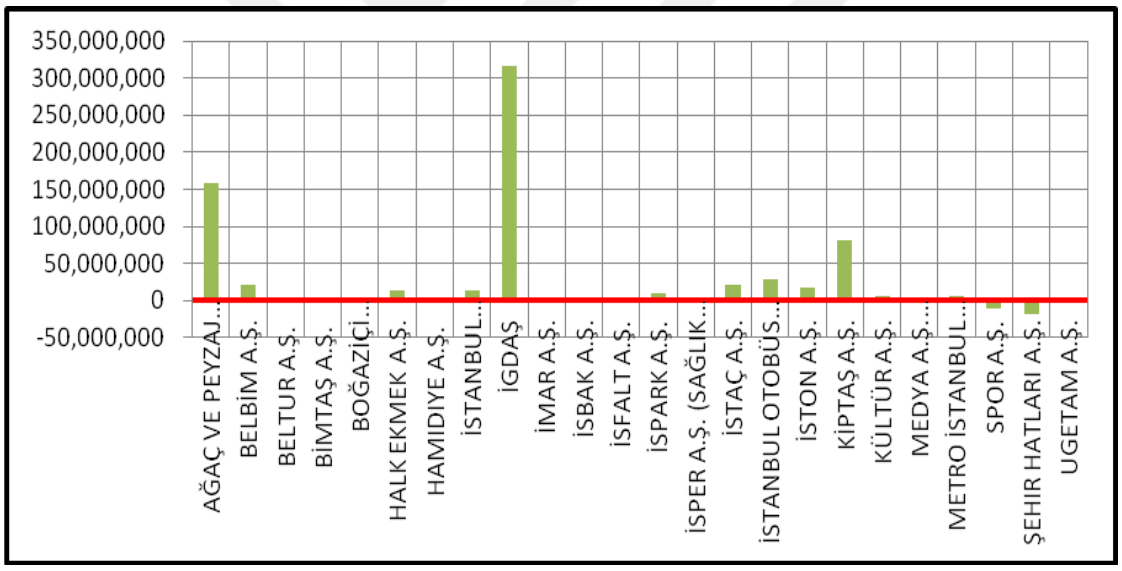

Figure 5.4: Total Profits of IMM's Companies (TL) | 2013.

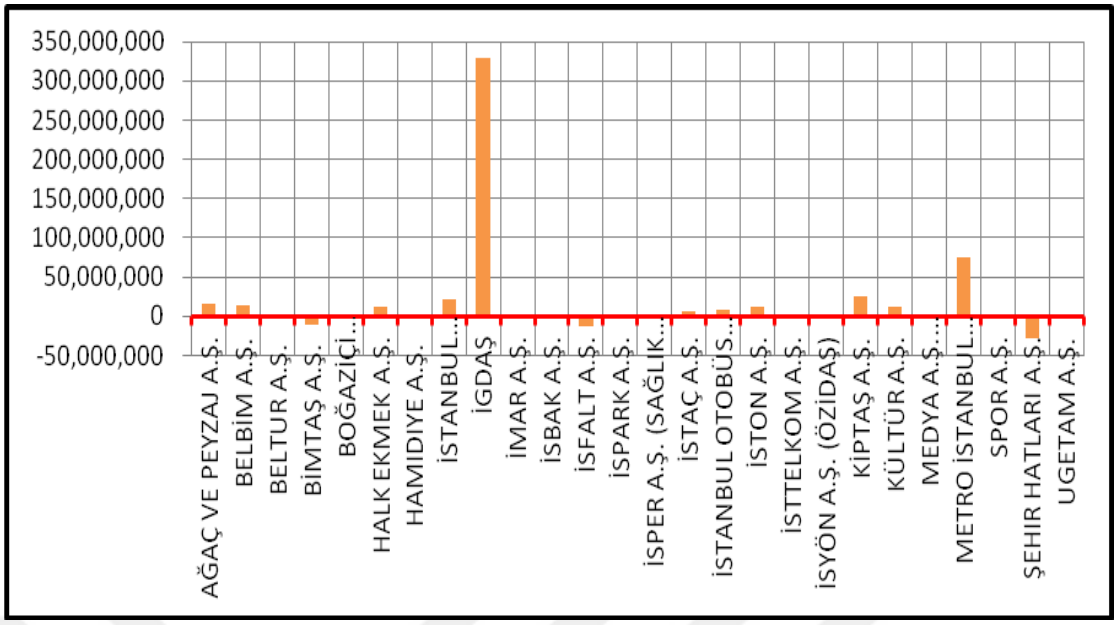

Figure 5.5: Total Profits of IMM's Companies (TL) | 2014.

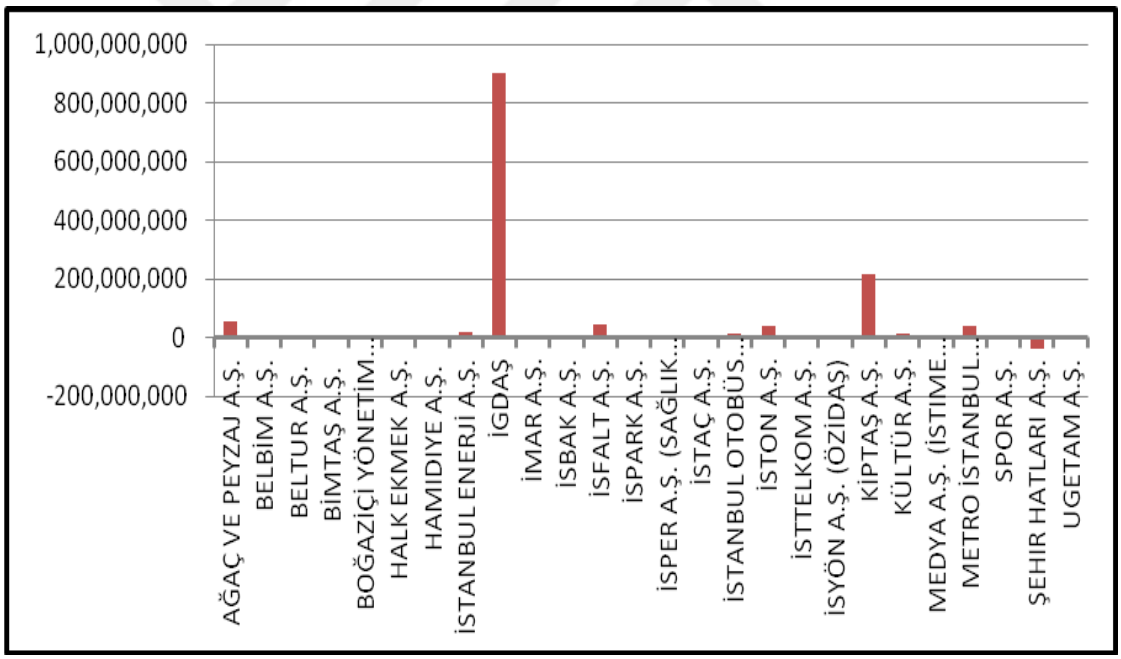

Figure 5.6: Total Profits of IMM's Companies (TL) | 2015.

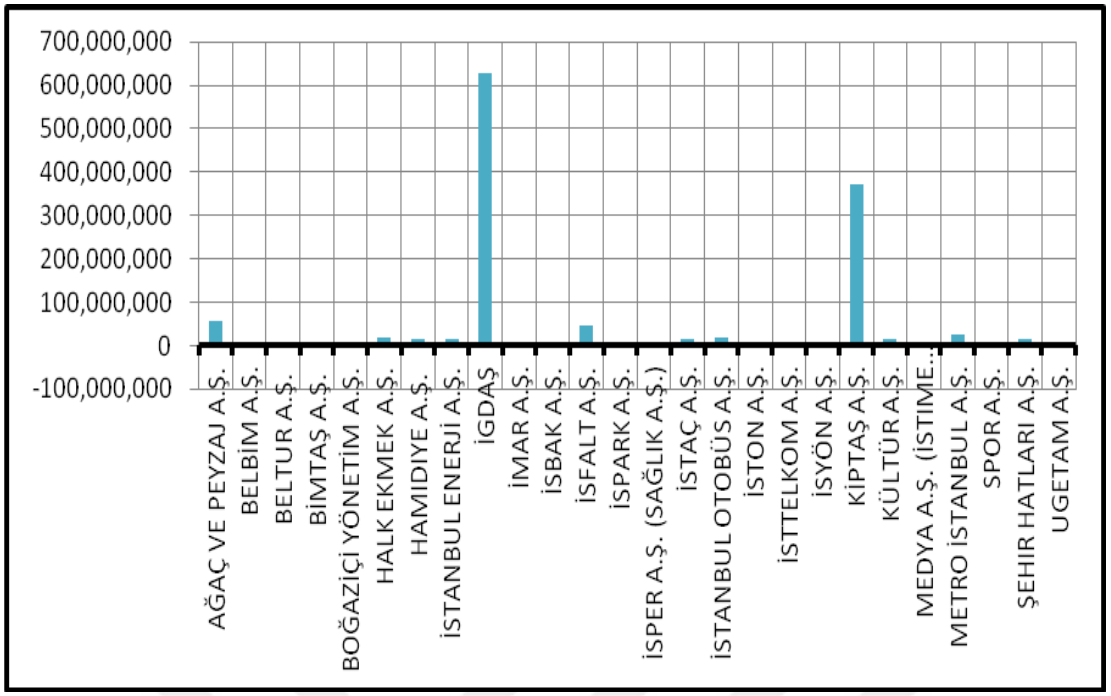

Figure 5.7: Total Profits of IMM's Companies (TL) | 2016.

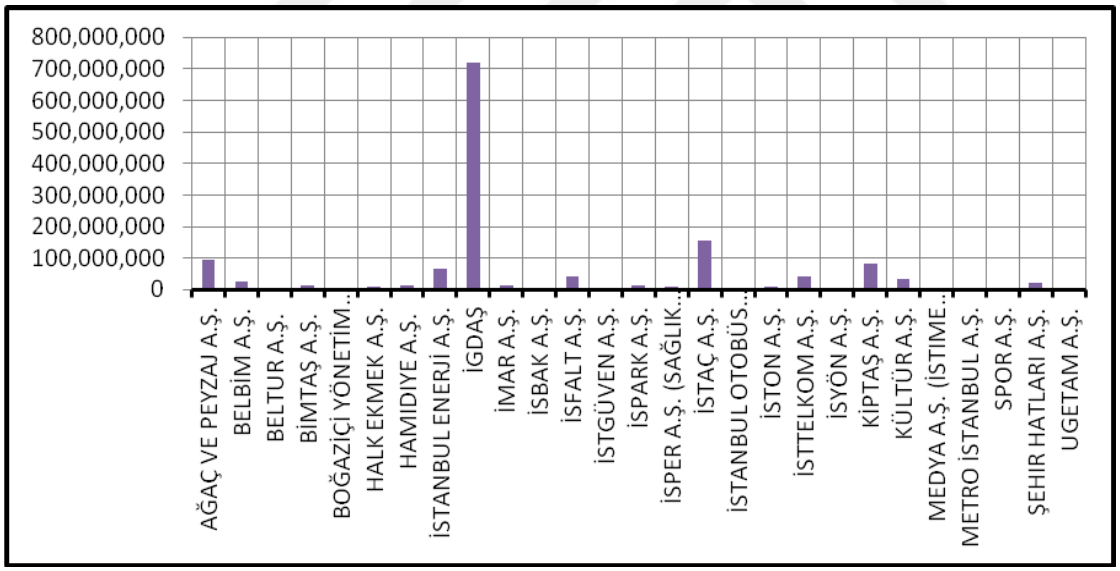

Figure 5.8: Total Profits of IMM's Companies (TL) | 2017.

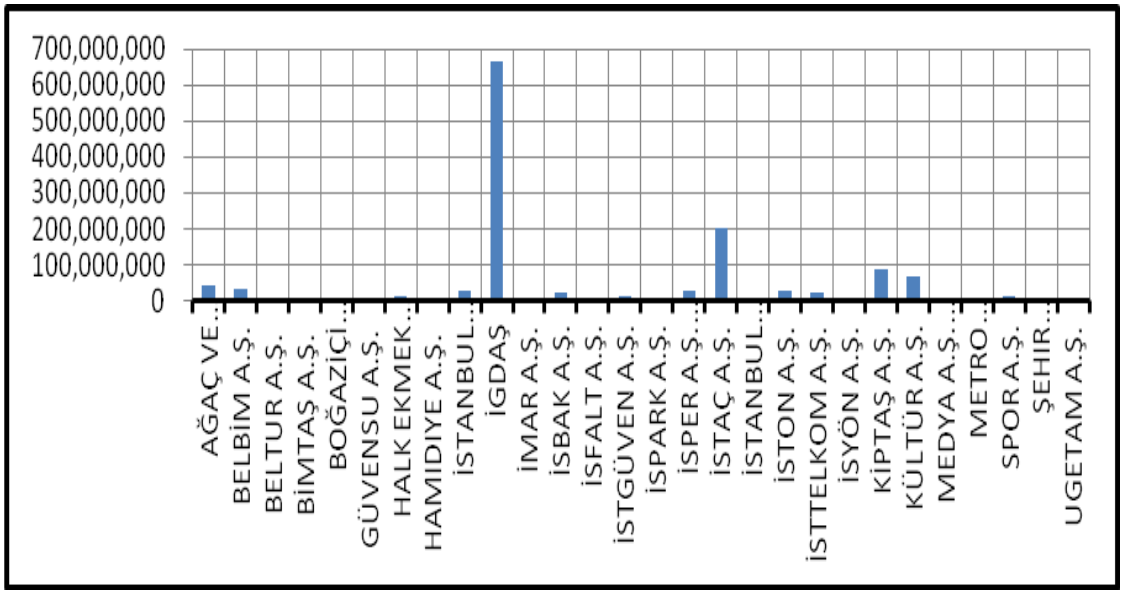

Figure 5.9: Total Profits of IMM's Companies (TL) | 2018.

5.3 Fortune Magazine's Rating for IMM's Companies

Fortune 500 is an American multinational business magazine headquartered in New York City, United States. It is published and owned by Time Inc., itself owned by Meredith Corporation, the publication was founded by Henry Luce in 1929. (Wikipedia, T.D: 28.01.2019)

Every year Fortune 500 publishes a list of the best 500 companies in different countries and Turkey among them, the companies are chosen according to their annual net sale. During the years 2012 – 2017 some of the IMM business companies have been listed on the Fortune List as some of the best 500 companies on net sales basis.

The highest number was in 2016 and 2017 where 7 companies has been mentioned in the list with total sales about 9.006.449.732,00 TL for 2016 and 11.583.479.404 TL and the lowest was in 2012 where only 3 companies have been entered the list with total sales about 4.478.474.590,00 TL:

- 2012: 3 companies.
- 2013: 5 companies.
- 2014: 6 companies.
- 2015: 6 companies.
- 2016: 7 companies.
- 2017: 7 companies.
- 2018: No data published till the date.

Table 5.45: Fortune Magazine Classification for IMM Companies, Year 2012.

Name of the company	Rating out of 500 top companies in Turkey / 2012	Net sales (TL)
İgdaş	29	3.921.989.823
İstaç	305	355.051.645
İston	489	201.433.122

(**Source**: www.fortuneturkey.com, T.D: 28.01.2019)

Table 5.46: Fortune Magazine Classification for IMM Companies, Year 2013.

Name of the company	Rating out of 500 top companies in Turkey / 2013	Net sales (TL)
İgdaş	26	4.603.561.806
Metro İstanbul (Istanbul ulasim)	274	463.400.755
İston	291	430.476.065
İstaç	341	351.995.919
Kiptaş	370	316.867.452

(**Source**: www.fortuneturkey.com, T.D: 28.01.2019)

Table 5.47: Fortune Magazine Classification for IMM Companies, Year 2014.

Name of the company	Rating out of 500 top companies in Turkey / 2014	Net sales (TL)
İgdaş	28	4.682.385.391
Metro İstanbul (istanbul ulaşim)	251	606.168.081
İstaç	329	437.770.088
İston	369	388.468.237
Otobüs	445	319.273.370
Kiptaş	448	318.476.037

(**Source**: www.fortuneturkey.com, T.D: 28.01.2019)

Table 5.48: Fortune Magazine Classification for IMM Companies, Year 2015.

Name of the company	Rating out of 500 top companies in Turkey / 2015	Net sales (TL)
İgdaş	28	5.677.377.839
Metro İstanbul (istanbul ulasim)	228	704.242.139
Kiptaş	240	664.219.551
İstaç	261	604.482.696
Ağaç	306	506.952.116
Otobüs	450	338.629.914

(**Source**: www.fortuneturkey.com, T.D: 28.01.2019)

Table 5.49: Fortune Magazine Classification for IMM Companies, Year 2016.

Name of the company	Rating out of 500 top companies in Turkey / 2016	Net sales (TL)
İgdaş	30	5.637.838.963
Kiptaş	167	1.136.894.319
İstaç	251	683.093.547
Ağaç	314	535.948.371
Otobüs	464	342.259.770
İsbak	466	337.940.900
İston	471	332.473.862

(**Source**: www.fortuneturkey.com, T.D: 28.01.2019)

Table 5.50: Fortune Magazine Classification for IMM Companies, Year 2017.

Name of the company	Rating out of 500 top companies in Turkey / 2016	Net sales (TL)
İgdaş	33	6.082.826.772
Kiptaş	127	1.835.063.065
İstaç	240	935.208.963
Metro İstanbul (istanbul ulasim)	264	859.736.713
Ağaç	287	780.295.953
İsbak	401	544.979.512
İston	400	545.368.426

(**Source**: www.fortuneturkey.com, T.D: 28.01.2019)

5.4 Results

The main objective of this study was to verify the financial performance for all IMM' companies to prove the study's main problem.

The theoretical part of the study covers different areas starting from the metropolitan municipality concept, history of metropolitan municipalities in Turkey, the privatization laws which have been legislated, the reasons behind this implementation and a quick review at each company's lines of business, while the other part of the study observed the income/outcome figures of each company, the employment statistics of the 28 companies for seven years have been discussed too.

For conducting the study, the data has been collected and prepared from different resources such as companies' annual and financial reports, IMM's annual and financial reports, companies' booklets and companies' official websites in addition to government's official publications. All of above were reflecting data relative to seven-year period, from 2012 to 2018.

After gathering data, they have been analyzed using the Data Envelopment Analysis System (DEA). DEA is a technique relying on mathematical programming methods for estimating various types of efficiency, first applied by Michael Farrell in 1957; the technique was popularized and named by Abraham Charnes, William W. Cooper and Eduardo Rhodes in the late 1970s. (Encyclopedia.com T.D: 31/07/2019)

The analyzing depended on one output and one input, the output was the total revenue for each company while the input was the total expenses for each company.

By analyzing the data, explanations were given and the conducted study has resulted into a number of key observations that facilitate to achieve the key study objectives.

5.4.1 Data analysis

Table 5.51: Technical Efficiency Results for All Companies 2012-2018.

Technical efficiency results

No.	Company	2012	2013	2014	2015	2016	2017	2018
1	İmar A.Ş.	1	1	0.728	1	1	1	0.979
2	İston A.Ş.	0.447	0.411	0.309	0.432	0.697	0.313	0.811
3	İsfalt A.Ş.	0.416	0.39	0.252	0.458	0.769	0.362	0.774
4	Kiptaş A.Ş.	0.511	0.503	0.32	0.569	0.922	0.322	0.872
5	Bimtaş A.Ş.	0.233	0.374	0.21	0.408	0.71	0.32	0.778
6	Kültür A.Ş.	0.416	0.408	0.313	0.42	0.708	0.323	0.86
7	Spor A.Ş.	0.317	0.338	0.301	0.428	0.684	0.303	0.801
8	İsper A.Ş.	0.414	0.399	0.296	0.384	0.684	0.311	0.796
9	İsyön A.Ş.	-	-	0.304	0.399	0.701	0.305	0.776
10	Boğaziçi Yönetim A.Ş.	0.479	0.404	0.313	0.398	0.695	0.308	0.777
11	İstgüven A.Ş.	-	-	-	-	-	0.311	0.792
12	Halk Ekmek A.Ş.	0.468	0.422	0.317	0.409	0.743	0.316	0.813
13	Hamidiye A.Ş.	0.405	0.392	0.305	0.419	0.778	0.343	0.801
14	Güvensu A.Ş.	-	-	-	-	-	-	0.828
15	Beltur A.Ş.	0.404	0.389	0.298	0.406	0.688	0.306	0.772
16	Metro İstanbul A.Ş.	0.421	0.394	0.333	0.417	0.706	0.305	0.775
17	İst. Otobüs A.Ş.	0.46	0.438	0.303	0.41	0.72	0.305	0.778
18	Şehir Hatlari A.Ş.	0.294	0.321	0.219	0.269	0.763	0.342	0.8
19	İspark A.Ş.	0.409	0.415	0.299	0.398	0.692	0.318	0.781
20	Belbim A.Ş.	0.514	0.506	0.345	0.426	0.675	0.359	0.962
21	İsttelkom A.Ş.	-	-	1	0.556	0.934	0.463	1
22	İsbak A.Ş.	0.415	0.393	0.298	0.402	0.697	0.307	0.811
23	Medya A.Ş.	0.353	0.317	0.296	0.525	0.935	0.309	0.779
24	Ağaç ve Peyzaj A.Ş.	0.457	0.647	0.311	0.444	0.763	0.346	0.814

25	İstaç A.Ş.	0.49	0.413	0.3	0.397	0.698	0.362	0.943
26	İstanbul Enerji A.Ş.	0.432	0.423	0.331	0.433	0.724	0.365	0.821
27	İgdaş	0.444	0.417	0.317	0.464	0.762	0.34	0.848
28	Ugetam A.Ş.	0.419	0.493	0.304	0.486	0.684	0.304	0.831
	Mean	**0.442**	**0.442**	**0.343**	**0.452**	**0.751**	**0.354**	**0.828**

In the year 2012, only 24 companies' data have been used as İsttelkom was founded later of 2012 and as İsyön has been privatized in 2014 and as Güvensu and İstgüven have been founded in 2016.

In the year 2013, also 24 companies' data have been used as İsttelkom was inactivated that year and as İSYÖN has been privatized in 2014 and as Güvensu and İstgüven have been founded in 2016.

In the year 2014, 2015 and 2016 only 26 companies' data have been used as Güvensu and İstgüven have been founded later in 2016.

In the year 2017, only 27 companies' data have been used as Güvensu which was founded in 2016, only the official takeover and foundation procedures have been carried and at that year it was inactive.

In the year 2018, 28 companies' data have been used; all used data are expressing one input (total expenses) and one output (total income) for each year.

The analyzing shows that the best company upon the technical efficiency for the year 2012, 2013, 2015, 2016, 2017 was İmar A.Ş., while the best company upon the technical efficiency for the years 2014 and 2018 was İsttelkom A.Ş.

The reason why İmar A.Ş. has got the best efficiency for 5 years out of 7 years (the period of study) is because it has the best relation between its input and its output on those years, the same thing was for İsttelkom A.Ş.

The best relation doesn't literarily mean the minimum input or maximum output; we can for example easily observe that the lowest input in 2015 was for İsttelkom but its output wasn't enough efficient comparing to its input, the same thing for Güvensu in 2018.

On the other hand İgdaş has recorded the maximum output among all companies in all the years of study but because of its high input İgdaş hasn't been listed among even the best three companies in all the period of study.

5.4.2 Best three companies 2012-2018

Following are the best three companies upon their efficiencies between the years 2012 – 2018:

In 2012, the best three companies upon their efficiencies are:
- İmar.
- Belbim.
- Kiptaş.

In 2013, the best three companies upon their efficiencies are:
- İmar.
- Ağaç ve Peyzaj.
- Belbim.

In 2014, the best three companies upon their efficiencies are:
- İsttelkom.
- İmar.
- Belbim.

In 2015, the best three companies upon their efficiencies are:
- İmar.
- Kiptaş.
- İsttelkom.

In 2016, the best three companies upon their efficiencies are:
- İmar.
- Medya.
- İsttelkom.

In 2017, the best three companies upon their efficiencies are:
- İmar.
- İsttelkom.
- İstanbul Enerji.

In 2018, the best three companies upon their efficiencies are:
- İsttelkom.
- İmar.
- Belbim.

5.4.3 Lowest three companies 2012-2018

Following are the lowest three companies upon their efficiencies between the years 2012 – 2018:

In 2012, the lowest three companies upon their efficiencies are:
- Bimtaş.
- Şehir Hatlari.
- Spor.

In 2013, the lowest three companies upon their efficiencies are:
- Medya.
- Şehir Hatlari.
- Spor.

In 2014, the lowest three companies upon their efficiencies are:
- Bimtaş.
- Şehir Hatlari.
- İsfalt.

In 2015, the lowest three companies upon their efficiencies are:
- Şehir Hatlari.
- Isper.
- İstaç.

In 2016, the lowest three companies upon their efficiencies are:
- Belbim.
- Ugetam, Spor, İsper (they had the same efficiency).

In 2017, the lowest three companies upon their efficiencies are:
- Spor.
- Ugetam.
- İsyön, Metro İstanbul, İstanbul Otobüs (they had the same efficiency).

In 2018, the lowest three companies upon their efficiencies are:
- Beltur.
- Metro İstanbul.
- İstanbul Otobüs.

As overall, the best year upon the efficiency's mean was as follow:

1. Year 2018: (0.828).
2. Year 2016: (0.751).
3. Year 2015: (0.452).
4. Year 2012, 2013: (0.442).
5. Year 2017: (0.354).
6. Year 2014: (0.343).

In the past seven years, which is the scope of this study, IMM companies contributed with approximately 10% of IMM total revenue, the best contribution was in 2015 and it reached up to 13% and the least contribution was in 2014 and it reached up to 4% only.

Table 5.52: IMM Companies' Contribution in IMM Total Revenue.

Year	IMM total revenue (TL)	IMM companies' total revenue (TL)	Sharing percentage in total IMM revenue
2012	7,423,983,342	662,763,307	9%
2013	8,936,033,998	678,092,134	8%
2014	12,276,426,547	490,642,611	4%
2015	10,514,526,248	1,348,293,638	13%
2016	11,717,664,936	1,278,164,355	11%
2017	14,610,463,282	1,383,749,761	9%
2018	18,424,947,829	1,301,874,056	7%

Through the period of the study (2012–2018) some companies have faced a real financial risk like Şehir Hatlari A.Ş. which has faced annual loss between the years 2012-2015 and BİMTAŞ between the years 2012 – 2014. The grand total loss of all IMM's companies within 7 years reached up to 196,553,287.00 TL.

Table 5.53: Grand Total Loss for IMM's Companies 2012-2018.

Company	2012	2013	2014	2015	2016	2017	2018
Belbim	-	-	-	-	(1,535,445)	-	-
Bimtaş	(17,433,446)	(1,715,648)	(11,679,116)	-	-	-	-
İsfalt	-	-	(13,568,228)	-	-	-	-
İsper	-	-	-	(7,726,298)	-	-	-
Medya	(600,824)	(1,155,653)	(14,030)	-	-	-	-
Spor	(17,187,856)	(11,559,692)	-	-	-	-	-
Şehir Hatlari	(28,059,550)	(17,519,275)	(27,964,088)	(38,834,138)	-	-	-
Yearly total loss	**(63,281,676)**	**(31,950,268)**	**(53,225,462)**	**(46,560,436)**	**(1,535,445)**	**0**	**0**
Grand total loss (2012-2018)	**(196,553,287 TL)**						

It has been remarked that in the last two years of the scope of study, no company has recorded any financial loss.

It has been observed that the field of business of the municipality companies during the period of study was increasing; the number of business companies has been 25 in 2012, augmented to 26 companies in 2014, later on 2016 the total number has reached to 28 companies.

5.4.4 Impact of IMM's companies on employment rate

The employment force in Istanbul is approx. 2.392.916 person where 2.078.416 are working in private sector (İstanbul İşgücü Piaysası Araştirma Raporu, 2017: p 15,26,28) and about 314.500 are working in the government sector (memurlar.net T.D: 15.01.2019). After analyzing, the total number of IMM's companies reached up to 53481 employees which means that IMM's companies contribute in 0.022% of the employment force in Istanbul which is considered as a positive impact on total employment rate.

The highest number of employees were in İstaç A.Ş with more than 4000 employees whereas the least number was in İmar A.Ş with only 14 employees, and the best increasing in employment rate was in 2018 with a percentage reached up to 86% after a decision took by IMM to consider another 21978 subcontractors as fulltime employees in its companies whom successfully completed the application, examination and security investigation processes.

Table 5.54: Annual Total Number of Employees in IMM's Companies.

Year	Total number of employees in IMM companies	Augmentation percentage
2012	12789	-
2013	14713	15%
2014	23284	58%
2015	25135	8%
2016	26374	5%
2017	28673	8.5%
2018	53481	86%

From all above, and due to the collected, observed and analyzed data, the researcher tends to believe that municipal business companies have positive impact on Istanbul Metropolitan Municipality's financial performance and this implementation is worthy to apply in other metropolitan municipalities in Turkey or abroad.

5.5 Recommendations

Establishing business companies for municipalities or privatize them is an important factor for the economic performance of the municipalities which will enable them create new sources of income and to use credit from private banks.

For more transparency, the laws regarding the tenders and public procurement law for the municipality companies are needed to be revised; the right of using the public resources should be more defined and the possibility of giving some privileges such as buffets and tea gardens without a tender should be revised too.

At the same time the financing support from the municipality to these companies must be more controlled, the product and services of these companies are subject to the rules of market and in case of any loss that will affect negatively on municipality's budget.

5.6 Suggestions for further studies

Though it was a complex process to measure the whole companies as one unit, there is no doubt that the economic impacts of these companies need more investigation and study.

Turkey has a deep experience in local governments management and in privatization field, the available researches in English language about this wonderful experiment is still under average.

Therefore the researcher encourages further studies to navigate more about municipal enterprises companies to enrich the literature about this subject.

Further studies might compare the practices of other international metropolitan cities like London or New York especially the USA practices which prefers to run theses services with regulated private firms with Istanbul. A future research might be about the role of municipalities in their pursuit of self sustainable development.

CONCLUSION

Towards the end of the 1970s, the privatization of municipal companies was implemented particularly in the United States and the United Kingdom. Privatization is considered as one of the solutions for the rehabilitation of public sector, especially municipal enterprises.

Responding to economy liberalization and public sector privatization, many laws in Turkey has been legalized to facilitate establishing or participating in economic business companies for municipalities and local governments such as law No. 1580, Law No. 3030, law No. 5216, law No. 5272, law No. 5393 and Turkish Commercial Act No 6762.

The privatization of municipal economic enterprises was necessary in order to get rid of the strict rules and heavy functioning of public law, to carry out some public services more effectively and to maximize the social and economic benefits of the local community.

On the basis of these legal grounds and since 1984 the municipalities have moved to rapid corporations in many areas, and municipal economic enterprise has been founded and emerged in big cities like Ankara, Izmir and Istanbul where 28 companies have been founded or privatized.

These companies are well employer, 22 out of 1000 of the employment forces in Istanbul are working in one of IMM's companies, and they are good provider for municipality's budget, approximately 10% of IMM's total budget. They are major provider of services and goods with reasonable quality and price.

Bureaucracy in Turkey was one of the main reasons why municipalities prefer to privatize its economic enterprises, by this way they ensure that legal restrictions will be minimized, and it will give them more space of free expenditures by reducing the central government oversight and to get rid of the restrictions of the state procurement law no. 2886 and they will have the opportunity to hire qualified staff within flexible wage policy by excluding the public personnel regime and to give the ability to take faster economic decisions, and by result can run effectively the public services.

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APPENDICES

Appendix A: Results from DEAP Version 2.1| Year 2012
Appendix B: Results from DEAP Version 2.1| Year 2013
Appendix C: Results from DEAP Version 2.1| Year 2014
Appendix D: Results from DEAP Version 2.1| Year 2015
Appendix E: Results from DEAP Version 2.1| Year 2016
Appendix F: Results from DEAP Version 2.1| Year 2017
Appendix G: Results from DEAP Version 2.1| Year 2018

Appendix A
Results from DEAP Version 2.1| Year 2012

Instruction file = eg1-ins.txt
Data file = eg1-dta.txt
Input orientated DEA
Scale assumption: CRS

Slacks calculated using multi-stage method

Decision Making Units (DMU's):

1. İmar A.Ş.
2. İston A.Ş.
3. İsfalt A.Ş.
4. Kiptaş A.Ş.
5. Bimtaş A.Ş.
6. Kültür A.Ş.
7. Spor A.Ş.
8. İsper A.Ş.
9. Boğaziçi Yönetim A.Ş.
10. Halk Ekmek A.Ş.
11. Hamidiye A.Ş.
12. Beltur A.Ş.
13. Metro İstanbul A.Ş.
14. İstanbul Otobüs A.Ş.
15. Şehir Hatlari A.Ş.
16. İspark A.Ş.
17. Belbim A.Ş.
18. İsbak A.Ş.
19. Medya A.Ş.
20. Ağaç Ve Peyzaj A.Ş.
21. İstaç A.Ş.
22. İstanbul Enerji A.Ş.
23. İgdaş
24. Ugetam A.Ş.

EFFICIENCY SUMMARY:

firm	te
1	1.000
2	0.447
3	0.416
4	0.511
5	0.233
6	0.416
7	0.317
8	0.414
9	0.479
10	0.468
11	0.405
12	0.404
13	0.421
14	0.460
15	0.294
16	0.409
17	0.514
18	0.415
19	0.353
20	0.457
21	0.490
22	0.432
23	0.444
24	0.419

mean 0.442

SUMMARY OF OUTPUT SLACKS:

firm	output:	1
1		0.000
2		0.000
3		0.000
4		0.000
5		0.000
6		0.000
7		0.000
8		0.000
9		0.000
10		0.000
11		0.000
12		0.000
13		0.000
14		0.000
15		0.000
16		0.000
17		0.000
18		0.000
19		0.000
20		0.000
21		0.000
22		0.000
23		0.000
24		0.000
mean		0.000

SUMMARY OF INPUT SLACKS:

firm	input: 1
1	0.000
2	0.000
3	0.000
4	0.000
5	0.000
6	0.000
7	0.000
8	0.000
9	0.000
10	0.000
11	0.000
12	0.000
13	0.000
14	0.000
15	0.000
16	0.000
17	0.000
18	0.000
19	0.000
20	0.000
21	0.000
22	0.000
23	0.000
24	0.000
mean	0.000

SUMMARY OF PEERS:

firm	peers:
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1
10	1
11	1
12	1
13	1
14	1
15	1
16	1
17	1
18	1
19	1
20	1
21	1
22	1
23	1
24	1

SUMMARY OF PEER WEIGHTS:
(in same order as above)

firm	peer weights:
1	1.000
2	64.874
3	15.741
4	109.369
5	5.675
6	27.539
7	14.963
8	30.605
9	1.828
10	36.761
11	15.690
12	15.625
13	95.556
14	35.148
15	17.847
16	26.648
17	20.431
18	19.849
19	1.008
20	56.155
21	84.722
22	28.917
23	13.825
24	2.469

PEER COUNT SUMMARY:
(i.e., no. times each firm is a peer for another)

firm	peer count:
1	23
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0

SUMMARY OF OUTPUT TARGETS:

firm	output: 1
1	4247210.000
2	275532996.000
3	66853410.000
4	464512492.000
5	24103253.000
6	116962318.000
7	63552471.000
8	129983978.000
9	7762982.000
10	156129697.000
11	66639350.000
12	66361955.000
13	405844766.000
14	149279511.000
15	75801692.000
16	113177992.000
17	86772664.000
18	84304141.000
19	4281161.000
20	238503972.000
21	359831238.000
22	122816052.000
23	4305927601.000
24	10484245.000

SUMMARY OF INPUT TARGETS:

firm	input: 1
1	1708620.000
2	110844810.505
3	26894613.969
4	186869811.966
5	9696553.771
6	47053043.240
7	25566671.533
8	52291557.161
9	3122988.104
10	62809779.335
11	26808499.273
12	26696905.393
13	163268235.873
14	60054002.059
15	30494439.169
16	45530637.923
17	34907977.040
18	33914909.175
19	1722278.227
20	95948318.223
21	144757346.557
22	49407955.521
23	1732241640.423
24	4217731.332

FIRM BY FIRM RESULTS:

Results for firm: 1

Technical efficiency = 1.000

PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	4247210.000	0.000	0.000	4247210.000
input	1	1708620.000	0.000	0.000	1708620.000

LISTING OF PEERS:

peer	lambda weight
1	1.000

Results for firm: 2
Technical efficiency = 0.447
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	275532996.000	0.000	0.000	275532996.000
input	1	247702405.000	-136857594.495	0.000	110844810.505

LISTING OF PEERS:

peer	lambda weight
1	64.874

Results for firm: 3
Technical efficiency = 0.416
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	66853410.000	0.000	0.000	66853410.000
input	1	64590684.000	-37696070.031	0.000	26894613.969

LISTING OF PEERS:

peer	lambda weight
1	15.741

Results for firm: 4
Technical efficiency = 0.511
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	464512492.000	0.000	0.000	464512492.000
input	1	365526091.000	-178656279.034	0.000	186869811.966

LISTING OF PEERS:

peer	lambda weight
1	109.369

Results for firm: 5
Technical efficiency = 0.233
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	24103253.000	0.000	0.000	24103253.000
input	1	41536699.000	-31840145.229	0.000	9696553.771

LISTING OF PEERS:

peer	lambda weight
1	5.675

Results for firm: 6
Technical efficiency = 0.416
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	116962318.000	0.000	0.000	116962318.000
input	1	112976294.000	-65923250.760	0.000	47053043.240

LISTING OF PEERS:

peer	lambda weight
1	27.539

Results for firm: 7
Technical efficiency = 0.317
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	63552471.000	0.000	0.000	63552471.000
input	1	80740327.000	-55173655.467	0.000	25566671.533

LISTING OF PEERS:

peer	lambda weight
1	14.963

Results for firm: 8
Technical efficiency = 0.414
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	129983978.000	0.000	0.000	129983978.000
input	1	126456161.000	-74164603.839	0.000	52291557.161

LISTING OF PEERS:

peer	lambda weight
1	30.605

Results for firm: 9
Technical efficiency = 0.479
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	7762982.000	0.000	0.000	7762982.000
input	1	6518707.000	-3395718.896	0.000	3122988.104

LISTING OF PEERS:

peer	lambda weight
1	1.828

Results for firm: 10
Technical efficiency = 0.468
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	156129697.000	0.000	0.000	156129697.000
input	1	134215253.000	-71405473.665	0.000	62809779.335

LISTING OF PEERS:

peer	lambda weight
1	36.761

Results for firm: 11
Technical efficiency = 0.405
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	66639350.000	0.000	0.000	66639350.000
input	1	66260574.000	-39452074.727	0.000	26808499.273

LISTING OF PEERS:

peer	lambda weight
1	15.690

Results for firm: 12
Technical efficiency = 0.404
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	66361955.000	0.000	0.000	66361955.000
input	1	66080808.000	-39383902.607	0.000	26696905.393

LISTING OF PEERS:

peer	lambda weight
1	15.625

Results for firm: 13
Technical efficiency = 0.421
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	405844766.000	0.000	0.000	405844766.000
input	1	388190228.000	-224921992.127	0.000	163268235.873

LISTING OF PEERS:

peer	lambda weight
1	95.556

Results for firm: 14
Technical efficiency = 0.460
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	149279511.000	0.000	0.000	149279511.000
input	1	130420097.000	-70366094.941	0.000	60054002.059

LISTING OF PEERS:

peer	lambda weight
1	35.148

Results for firm: 15
Technical efficiency = 0.294
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	75801692.000	0.000	0.000	75801692.000
input	1	103861242.000	-73366802.831	0.000	30494439.169

LISTING OF PEERS:

peer	lambda weight
1	17.847

Results for firm: 16
Technical efficiency = 0.409
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	113177992.000	0.000	0.000	113177992.000
input	1	111343733.000	-65813095.077	0.000	45530637.923

LISTING OF PEERS:

peer	lambda weight
1	26.648

Results for firm: 17
Technical efficiency = 0.514
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	86772664.000	0.000	0.000	86772664.000
input	1	67905590.000	-32997612.960	0.000	34907977.040

LISTING OF PEERS:

peer	lambda weight
1	20.431

Results for firm: 18
Technical efficiency = 0.415
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	84304141.000	0.000	0.000	84304141.000
input	1	81797793.000	-47882883.825	0.000	33914909.175

LISTING OF PEERS:

peer	lambda weight
1	19.849

Results for firm: 19
Technical efficiency = 0.353
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	4281161.000	0.000	0.000	4281161.000
input	1	4881985.000	-3159706.773	0.000	1722278.227

LISTING OF PEERS:

peer	lambda weight
1	1.008

Results for firm: 20
Technical efficiency = 0.457
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	238503972.000	0.000	0.000	238503972.000
input	1	210056108.000	-114107789.777	0.000	95948318.223

LISTING OF PEERS:

peer	lambda weight
1	56.155

Results for firm: 21
Technical efficiency = 0.490
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	359831238.000	0.000	0.000	359831238.000
input	1	295331825.000	-150574478.443	0.000	144757346.557

LISTING OF PEERS:

peer	lambda weight
1	84.722

Results for firm: 22
Technical efficiency = 0.432
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	122816052.000	0.000	0.000	122816052.000
input	1	114308758.000	-64900802.479	0.000	49407955.521

LISTING OF PEERS:

peer	lambda weight
1	28.917

Results for firm: 23
Technical efficiency = 0.444
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	4305927601.000	0.000	0.000	305927601.000
input	1	3904432618.000	-2172190977.577	0.000	1732241640.423

LISTING OF PEERS:

peer	lambda weight
1	13.825

Results for firm: 24
Technical efficiency = 0.419
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	10484245.000	0.000	0.000	10484245.000
input	1	10061240.000	-5843508.668	0.000	4217731.332

LISTING OF PEERS:

peer	lambda weight
1	2.469

Appendix B
Results from DEAP Version 2.1| Year 2013

Instruction file = eg1-ins.txt
Data file = eg1-dta.txt
Input orientated DEA
Scale assumption: CRS

Slacks calculated using multi-stage method

Decision Making Units (DMU's):

1. İmar A.Ş.
2. İston A.Ş.
3. İsfalt A.Ş.
4. Kiptaş A.Ş.
5. Bimtaş A.Ş.
6. Kültür A.Ş.
7. Spor A.Ş.
8. İsper A.Ş.
9. Boğaziçi Yönetim A.Ş.
10. Halk Ekmek A.Ş.
11. Hamidiye A.Ş.
12. Beltur A.Ş.
13. Metro İstanbul A.Ş.
14. İstanbul Otobüs A.Ş.
15. Şehir Hatlari A.Ş.
16. İspark A.Ş.
17. Belbim A.Ş.
18. İsbak A.Ş.
19. Medya A.Ş.
20. Ağaç Ve Peyzaj A.Ş.
21. İstaç A.Ş.
22. İstanbul Enerji A.Ş.
23. İgdaş
24. Ugetam A.Ş.

EFFICIENCY SUMMARY:

firm	te
1	1.000
2	0.411
3	0.390
4	0.503
5	0.374
6	0.408
7	0.338
8	0.399
9	0.404
10	0.422
11	0.392
12	0.389
13	0.394
14	0.438
15	0.321
16	0.415
17	0.506
18	0.393
19	0.317
20	0.647
21	0.413
22	0.423
23	0.417
24	0.493
mean	0.442

SUMMARY OF OUTPUT SLACKS:

firm	output: 1
1	0.000
2	0.000
3	0.000
4	0.000
5	0.000
6	0.000
7	0.000
8	0.000
9	0.000
10	0.000
11	0.000
12	0.000
13	0.000
14	0.000
15	0.000
16	0.000
17	0.000
18	0.000
19	0.000
20	0.000
21	0.000
22	0.000
23	0.000
24	0.000
mean	0.000

SUMMARY OF INPUT SLACKS:

firm	input: 1
1	0.000
2	0.000
3	0.000
4	0.000
5	0.000
6	0.000
7	0.000
8	0.000
9	0.000
10	0.000
11	0.000
12	0.000
13	0.000
14	0.000
15	0.000
16	0.000
17	0.000
18	0.000
19	0.000
20	0.000
21	0.000
22	0.000
23	0.000
24	0.000
mean	0.000

SUMMARY OF PEERS:

firm	peers:
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1
10	1
11	1
12	1
13	1
14	1
15	1
16	1
17	1
18	1
19	1
20	1
21	1
22	1
23	1
24	1

SUMMARY OF PEER WEIGHTS:
(in same order as above)

firm	peer weights:
1	1.000
2	76.387
3	135.406
4	79.870
5	9.438
6	30.038
7	17.050
8	34.926
9	1.890
10	39.875
11	14.946
12	23.113
13	112.228
14	57.493
15	18.527
16	36.966
17	19.897
18	22.571
19	1.135
20	88.305
21	79.671
22	37.658
23	65.432
24	5.069

PEER COUNT SUMMARY:

(i.e., no. times each firm is a peer for another)

firm	peer count:
1	23
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0

SUMMARY OF OUTPUT TARGETS:

firm	output: 1
1	4480277.000
2	342236507.000
3	606657239.000
4	357838463.000
5	42286723.000
6	134576738.000
7	76388596.000
8	156478558.000
9	8468882.000
10	178648864.000
11	66964093.000
12	103553029.000
13	502811031.000
14	257582776.000
15	83005051.000
16	165617508.000
17	89142922.000
18	101123106.000
19	5085280.000
20	395632830.000
21	356949312.000
22	168716863.000
23	4773431328.000
24	22709609.000

SUMMARY OF INPUT TARGETS:

firm	input: 1
1	1743309.000
2	133166762.408
3	236054829.794
4	139237599.169
5	16454077.457
6	52364806.584
7	29723369.092
8	60886967.138
9	3295304.779
10	69513597.586
11	26056225.096
12	40293251.384
13	195647500.287
14	100227368.006
15	32297880.790
16	64443000.344
17	34686171.906
18	39347750.328
19	1978720.153
20	153943667.598
21	138891623.923
22	65648982.355
23	1857377522.636
24	8836477.244

FIRM BY FIRM RESULTS:

Results for firm: 1
Technical efficiency = 1.000
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	4480277.000	0.000	0.000	4480277.000
input	1	1743309.000	0.000	0.000	1743309.000

LISTING OF PEERS:

peer	lambda weight
1	1.000

Results for firm: 2
Technical efficiency = 0.411
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	342236507.000	0.000	0.000	342236507.000
input	1	323834976.000	-190668213.592	0.000	133166762.408

LISTING OF PEERS:

peer	lambda weight
1	76.387

Results for firm: 3
Technical efficiency = 0.390
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	606657239.000	0.000	0.000	606657239.000
input	1	604818883.000	-368764053.206	0.000	236054829.794

LISTING OF PEERS:

peer	lambda weight
1	135.406

Results for firm: 4

Technical efficiency = 0.503

PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	357838463.000	0.000	0.000	357838463.000
input	1	276739522.000	-137501922.831	0.000	139237599.169

LISTING OF PEERS:

peer	lambda weight
1	79.870

Results for firm: 5

Technical efficiency = 0.374

PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	42286723.000	0.000	0.000	42286723.000
input	1	44002371.000	-27548293.543	0.000	16454077.457

LISTING OF PEERS:

peer	lambda weight
1	9.438

Results for firm: 6

Technical efficiency = 0.408

PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	134576738.000	0.000	0.000	134576738.000
input	1	128352023.000	-75987216.416	0.000	52364806.584

LISTING OF PEERS:

peer	lambda weight
1	30.038

Results for firm: 7
Technical efficiency = 0.338
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	76388596.000	0.000	0.000	76388596.000
input	1	87948288.000	-58224918.908	0.000	29723369.092

LISTING OF PEERS:

peer	lambda weight
1	17.050

Results for firm: 8
Technical efficiency = 0.399
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	156478558.000	0.000	0.000	156478558.000
input	1	152652820.000	-91765852.862	0.000	60886967.138

LISTING OF PEERS:

peer	lambda weight
1	34.926

Results for firm: 9
Technical efficiency = 0.404
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	8468882.000	0.000	0.000	8468882.000
input	1	8158822.000	-4863517.221	0.000	3295304.779

LISTING OF PEERS:

peer	lambda weight
1	1.890

Results for firm: 10
Technical efficiency = 0.422
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	178648864.000	0.000	0.000	178648864.000
input	1	164775711.000	-95262113.414	0.000	69513597.586

LISTING OF PEERS:

peer	lambda weight
1	39.875

Results for firm: 11
Technical efficiency = 0.392
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	66964093.000	0.000	0.000	66964093.000
input	1	66412527.000	-40356301.904	0.000	26056225.096

LISTING OF PEERS:

peer	lambda weight
1	14.946

Results for firm: 12
Technical efficiency = 0.389
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	103553029.000	0.000	0.000	103553029.000
input	1	103454097.000	-63160845.616	0.000	40293251.384

LISTING OF PEERS:

peer	lambda weight
1	23.113

Results for firm: 13
Technical efficiency = 0.394
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	502811031.000	0.000	0.000	502811031.000
input	1	496334036.000	-300686535.713	0.000	195647500.287

LISTING OF PEERS:

peer	lambda weight
1	112.228

Results for firm: 14
Technical efficiency = 0.438
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	257582776.000	0.000	0.000	257582776.000
input	1	228758204.000	-128530835.994	0.000	100227368.006

LISTING OF PEERS:

peer	lambda weight
1	57.493

Results for firm: 15
Technical efficiency = 0.321
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	83005051.000	0.000	0.000	83005051.000
input	1	100524326.000	-68226445.210	0.000	32297880.790

LISTING OF PEERS:

peer	lambda weight
1	18.527

Results for firm: 16
Technical efficiency = 0.415
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	165617508.000	0.000	0.000	165617508.000
input	1	155377393.000	-90934392.656	0.000	64443000.344

LISTING OF PEERS:

peer	lambda weight
1	36.966

Results for firm: 17
Technical efficiency = 0.506
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	89142922.000	0.000	0.000	89142922.000
input	1	68603089.000	-33916917.094	0.000	34686171.906

LISTING OF PEERS:

peer	lambda weight
1	19.897

Results for firm: 18
Technical efficiency = 0.393
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	101123106.000	0.000	0.000	101123106.000
input	1	100073000.000	-60725249.672	0.000	39347750.328

LISTING OF PEERS:

peer	lambda weight
1	22.571

Results for firm: 19
Technical efficiency = 0.317
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	5085280.000	0.000	0.000	5085280.000
input	1	6240933.000	-4262212.847	0.000	1978720.153

LISTING OF PEERS:

peer	lambda weight
1	1.135

Results for firm: 20
Technical efficiency = 0.647
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	395632830.000	0.000	0.000	395632830.000
input	1	238048298.000	-84104630.402	0.000	153943667.598

LISTING OF PEERS:

peer	lambda weight
1	88.305

Results for firm: 21
Technical efficiency = 0.413
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	356949312.000	0.000	0.000	356949312.000
input	1	336141835.000	-197250211.077	0.000	138891623.923

LISTING OF PEERS:

peer	lambda weight
1	79.671

Results for firm: 22
Technical efficiency = 0.423
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	168716863.000	0.000	0.000	168716863.000
input	1	155138102.000	-89489119.645	0.000	65648982.355

LISTING OF PEERS:

peer	lambda weight
1	37.658

Results for firm: 23
Technical efficiency = 0.417
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	4773431328.000	0.000	0.000	4773431328.000
input	1	4456231279.000	-2598853756.364	0.000	1857377522.636

LISTING OF PEERS:

peer	lambda weight
1	65.432

Results for firm: 24
Technical efficiency = 0.493
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	22709609.000	0.000	0.000	22709609.000
input	1	17929607.000	-9093129.756	0.000	8836477.244

LISTING OF PEERS:

peer	lambda weight
5.069	

Appendix C
Results from DEAP Version 2.1| Year 2014

Instruction file = eg1-ins.txt
Data file = eg1-dta.txt
Input orientated DEA
Scale assumption: CRS

Slacks calculated using multi-stage method

Decision Making Units (DMU's):

1. İmar A.Ş.
2. İston A.Ş.
3. İsfalt A.Ş.
4. Kiptaş A.Ş.
5. Bimtaş A.Ş.
6. Kültür A.Ş.
7. Spor A.Ş.
8. İsper A.Ş.
9. İsyön A.Ş.
10. Boğaziçi Yönetim A.Ş.
11. Halk Ekmek A.Ş.
12. Hamidiye A.Ş.
13. Beltur A.Ş.
14. Metro İstanbul A.Ş.
15. İstanbul Otobüs A.Ş.
16. Şehir Hatlari A.Ş.
17. İspark A.Ş.
18. Belbim A.Ş.
19. İsttelkom A.Ş.
20. İsbak A.Ş.
21. Medya A.Ş.
22. Ağaç Ve Peyzaj A.Ş.
23. İstaç A.Ş.
24. İstanbul Enerji A.Ş.
25. İgdaş
26. Ugetam A.Ş.

EFFICIENCY SUMMARY:

firm	te
1	0.728
2	0.309
3	0.252
4	0.320
5	0.210
6	0.313
7	0.301
8	0.296
9	0.304
10	0.313
11	0.317
12	0.305
13	0.298
14	0.333
15	0.303
16	0.219
17	0.299
18	0.345
19	1.000
20	0.298
21	0.296
22	0.311
23	0.300
24	0.331
25	0.317
26	0.304

mean 0.343

SUMMARY OF OUTPUT SLACKS:

firm	output:	1
1		0.000
2		0.000
3		0.000
4		0.000
5		0.000
6		0.000
7		0.000
8		0.000
9		0.000
10		0.000
11		0.000
12		0.000
13		0.000
14		0.000
15		0.000
16		0.000
17		0.000
18		0.000
19		0.000
20		0.000
21		0.000
22		0.000
23		0.000
24		0.000
25		0.000
26		0.000
mean		0.000

SUMMARY OF INPUT SLACKS:

firm	input:	1
1		0.000
2		0.000
3		0.000
4		0.000
5		0.000
6		0.000
7		0.000
8		0.000
9		0.000
10		0.000
11		0.000
12		0.000
13		0.000
14		0.000
15		0.000
16		0.000
17		0.000
18		0.000
19		0.000
20		0.000
21		0.000
22		0.000
23		0.000
24		0.000
25		0.000
26		0.000
mean		0.000

SUMMARY OF PEERS:

firm	peers:
1	19
2	19
3	19
4	19
5	19
6	19
7	19
8	19
9	19
10	19
11	19
12	19
13	19
14	19
15	19
16	19
17	19
18	19
19	19
20	19
21	19
22	19
23	19
24	19
25	19
26	19

SUMMARY OF PEER WEIGHTS:
(in same order as above)

firm	peer weights:
1	5.099
2	294.952
3	75.667
4	342.847
5	27.874
6	204.344
7	105.624
8	179.027
9	22.195
10	9.392
11	190.860
12	87.452
13	140.384
14	651.094
15	332.760
16	77.621
17	200.487
18	94.556
19	1.000
20	120.640
21	8.756
22	310.101
23	435.927
24	210.545
25	940.653
26	12.091

PEER COUNT SUMMARY:
(i.e., no. times each firm is a peer for another)

firm	peer count:
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	25
20	0
21	0
22	0
23	0
24	0
25	0
26	0

SUMMARY OF OUTPUT TARGETS:

firm	output: 1
1	5192264.000
2	300332501.000
3	77046888.000
4	349101394.000
5	28382506.000
6	208072009.000
7	107550615.000
8	182292708.000
9	22599846.000
10	9562928.000
11	194341858.000
12	89046844.000
13	142945064.000
14	662971392.000
15	338830124.000
16	79037121.000
17	204143972.000
18	96281240.000
19	1018242.000
20	122840513.000
21	8915545.000
22	315757378.000
23	443879185.000
24	214385683.000
25	5030780181.000
26	12311276.000

SUMMARY OF INPUT TARGETS:

firm	input: 1
1	1537651.411
2	88941296.876
3	22816878.347
4	103383851.632
5	8405273.768
6	61619019.795
7	31850336.364
8	53984666.350
9	6692780.854
10	2831991.927
11	57552934.932
12	26370578.481
13	42332146.311
14	196334180.284
15	100342089.348
16	23406271.448
17	60455760.062
18	28512992.506
19	301545.000
20	36378329.015
21	2640274.136
22	93509262.581
23	131451608.597
24	63488768.662
25	1489829146.391
26	3645895.299

FIRM BY FIRM RESULTS:

Results for firm: 1
Technical efficiency = 0.728
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	5192264.000	0.000	0.000	5192264.000
input	1	2112536.000	-574884.589	0.000	1537651.411

LISTING OF PEERS:

peer	lambda weight
19	5.099

Results for firm: 2
Technical efficiency = 0.309
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	300332501.000	0.000	0.000	300332501.000
input	1	287867526.000	-198926229.124	0.000	88941296.876

LISTING OF PEERS:

peer	lambda weight
19	294.952

Results for firm: 3
Technical efficiency = 0.252
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	77046888.000	0.000	0.000	77046888.000
input	1	90615116.000	-67798237.653	0.000	22816878.347

LISTING OF PEERS:

peer	lambda weight
19	75.667

Results for firm: 4
Technical efficiency = 0.320
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	349101394.000	0.000	0.000	349101394.000
input	1	323141192.000	-219757340.368	0.000	103383851.632

LISTING OF PEERS:

peer	lambda weight
19	342.847

Results for firm: 5
Technical efficiency = 0.210
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	28382506.000	0.000	0.000	28382506.000
input	1	40061622.000	-31656348.232	0.000	8405273.768

LISTING OF PEERS:

peer	lambda weight
19	27.874

Results for firm: 6
Technical efficiency = 0.313
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	208072009.000	0.000	0.000	208072009.000
input	1	196766589.000	-135147569.205	0.000	61619019.795

LISTING OF PEERS:

peer	lambda weight
19	204.344

Results for firm: 7
Technical efficiency = 0.301
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	107550615.000	0.000	0.000	107550615.000
input	1	105820574.000	-73970237.636	0.000	31850336.364

LISTING OF PEERS:

peer	lambda weight
19	105.624

Results for firm: 8
Technical efficiency = 0.296
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	182292708.000	0.000	0.000	182292708.000
input	1	182180792.000	-128196125.650	0.000	53984666.350

LISTING OF PEERS:

peer	lambda weight
19	179.027

Results for firm: 9
Technical efficiency = 0.304
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	22599846.000	0.000	0.000	22599846.000
input	1	21988764.000	-15295983.146	0.000	6692780.854

LISTING OF PEERS:

peer	lambda weight
19	22.195

Results for firm: 10
Technical efficiency = 0.313
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	9562928.000	0.000	0.000	9562928.000
input	1	9042700.000	-6210708.073	0.000	2831991.927

LISTING OF PEERS:

peer	lambda weight
19	9.392

Results for firm: 11
Technical efficiency = 0.317
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	194341858.000	0.000	0.000	194341858.000
input	1	181441366.000	-123888431.068	0.000	57552934.932

LISTING OF PEERS:

peer	lambda weight
19	190.860

Results for firm: 12
Technical efficiency = 0.305
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	89046844.000	0.000	0.000	89046844.000
input	1	86546720.000	-60176141.519	0.000	26370578.481

LISTING OF PEERS:

peer	lambda weight
19	87.452

Results for firm: 13
Technical efficiency = 0.298
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	142945064.000	0.000	0.000	142945064.000
input	1	142245551.000	-99913404.689	0.000	42332146.311

LISTING OF PEERS:

peer	lambda weight
19	140.384

Results for firm: 14
Technical efficiency = 0.333
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	662971392.000	0.000	0.000	662971392.000
input	1	588760117.000	-392425936.716	0.000	196334180.284

LISTING OF PEERS:

peer	lambda weight
19	651.094

Results for firm: 15
Technical efficiency = 0.303
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	338830124.000	0.000	0.000	338830124.000
input	1	331203626.000	-230861536.652	0.000	100342089.348

LISTING OF PEERS:

peer	lambda weight
19	332.760

Results for firm: 16
Technical efficiency = 0.219
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	79037121.000	0.000	0.000	79037121.000
input	1	107001209.000	-83594937.552	0.000	23406271.448

LISTING OF PEERS:

peer	lambda weight
19	77.621

Results for firm: 17
Technical efficiency = 0.299
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	204143972.000	0.000	0.000	204143972.000
input	1	202069325.000	-141613564.938	0.000	60455760.062

LISTING OF PEERS:

peer	lambda weight
19	200.487

Results for firm: 18
Technical efficiency = 0.345
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	96281240.000	0.000	0.000	96281240.000
input	1	82555269.000	-54042276.494	0.000	28512992.506

LISTING OF PEERS:

peer	lambda weight
19	94.556

Results for firm: 19
Technical efficiency = 1.000
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	1018242.000	0.000	0.000	1018242.000
input	1	301545.000	0.000	0.000	301545.000

LISTING OF PEERS:

peer	lambda weight
19	1.000

Results for firm: 20
Technical efficiency = 0.298
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	122840513.000	0.000	0.000	122840513.000
input	1	122233315.000	-85854985.985	0.000	36378329.015

LISTING OF PEERS:

peer	lambda weight
19	120.640

Results for firm: 21
Technical efficiency = 0.296
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	8915545.000	0.000	0.000	8915545.000
input	1	8929575.000	-6289300.864	0.000	2640274.136

LISTING OF PEERS:

peer	lambda weight
19	8.756

Results for firm: 22
Technical efficiency = 0.311
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	315757378.000	0.000	0.000	315757378.000
input	1	300738185.000	-207228922.419	0.000	93509262.581

LISTING OF PEERS:

peer	lambda weight
19	310.101

Results for firm: 23
Technical efficiency = 0.300
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	443879185.000	0.000	0.000	443879185.000
input	1	437813404.000	-306361795.403	0.000	131451608.597

LISTING OF PEERS:

peer	lambda weight
19	435.927

Results for firm: 24
Technical efficiency = 0.331
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	214385683.000	0.000	0.000	214385683.000
input	1	192054819.000	-128566050.338	0.000	63488768.662

LISTING OF PEERS:

peer	lambda weight
19	210.545

Results for firm: 25
Technical efficiency = 0.317
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	5030780181.000	0.000	0.000	5030780181.000
input	1	4701479592.000	-3211650445.609	0.000	1489829146.391

LISTING OF PEERS:

peer	lambda weight
19	940.653

Results for firm: 26
Technical efficiency = 0.304
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	12311276.000	0.000	0.000	12311276.000
input	1	12005637.000	-8359741.701	0.000	3645895.299

LISTING OF PEERS:

peer	lambda weight
19	12.091

Appendix D
Results from DEAP Version 2.1| Year 2015

Instruction file = eg1-ins.txt
Data file = eg1-dta.txt
Input orientated DEA
Scale assumption: CRS

Slacks calculated using multi-stage method

Decision Making Units (DMU's):

1. İmar A.Ş.
2. İston A.Ş.
3. İsfalt A.Ş.
4. Kiptaş A.Ş.
5. Bimtaş A.Ş.
6. Kültür A.Ş.
7. Spor A.Ş.
8. İsper A.Ş.
9. İsyön A.Ş.
10. Boğaziçi Yönetim A.Ş.
11. Halk Ekmek A.Ş.
12. Hamidiye A.Ş.
13. Beltur A.Ş.
14. Metro İstanbul A.Ş.
15. İstanbul Otobüs A.Ş.
16. Şehir Hatlari A.Ş.
17. İspark A.Ş.
18. Belbim A.Ş.
19. İsttelkom A.Ş.
20. İsbak A.Ş.
21. Medya A.Ş.
22. Ağaç Ve Peyzaj A.Ş.
23. İstaç A.Ş.
24. İstanbul Enerji A.Ş.
25. İgdaş
26. Ugetam A.Ş.

EFFICIENCY SUMMARY:

firm	te
1	1.000
2	0.432
3	0.458
4	0.569
5	0.408
6	0.420
7	0.428
8	0.384
9	0.399
10	0.398
11	0.409
12	0.419
13	0.406
14	0.417
15	0.410
16	0.269
17	0.398
18	0.426
19	0.556
20	0.402
21	0.525
22	0.444
23	0.397
24	0.433
25	0.464
26	0.486

mean 0.452

SUMMARY OF OUTPUT SLACKS:

firm	output:	1
1		0.000
2		0.000
3		0.000
4		0.000
5		0.000
6		0.000
7		0.000
8		0.000
9		0.000
10		0.000
11		0.000
12		0.000
13		0.000
14		0.000
15		0.000
16		0.000
17		0.000
18		0.000
19		0.000
20		0.000
21		0.000
22		0.000
23		0.000
24		0.000
25		0.000
26		0.000
mean		0.000

SUMMARY OF INPUT SLACKS:

firm	input: 1
1	0.000
2	0.000
3	0.000
4	0.000
5	0.000
6	0.000
7	0.000
8	0.000
9	0.000
10	0.000
11	0.000
12	0.000
13	0.000
14	0.000
15	0.000
16	0.000
17	0.000
18	0.000
19	0.000
20	0.000
21	0.000
22	0.000
23	0.000
24	0.000
25	0.000
26	0.000
mean	0.000

SUMMARY OF PEERS:

firm	peers:
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1
10	1
11	1
12	1
13	1
14	1
15	1
16	1
17	1
18	1
19	1
20	1
21	1
22	1
23	1
24	1
25	1
26	1

SUMMARY OF PEER WEIGHTS:
(in same order as above)

firm	peer weights:
1	1.000
2	82.583
3	56.670
4	123.574
5	11.489
6	47.726
7	23.871
8	39.877
9	2.427
10	1.805
11	35.449
12	19.686
13	29.360
14	131.202
15	59.853
16	14.105
17	41.105
18	17.790
19	0.310
20	30.469
21	2.575
22	88.084
23	105.697
24	38.702
25	70.323
26	3.678

PEER COUNT SUMMARY:
(i.e., no. times each firm is a peer for another)

firm	peer count:
1	25
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0

SUMMARY OF OUTPUT TARGETS:

firm	output: 1
1	5815644.000
2	480274316.000
3	329570980.000
4	718660097.000
5	66814985.000
6	277557389.000
7	138826875.000
8	231912505.000
9	14115806.000
10	10498588.000
11	206161484.000
12	114487700.000
13	170747673.000
14	763025266.000
15	348085227.000
16	82031381.000
17	239052380.000
18	103459184.000
19	1800036.000
20	177195235.000
21	14976948.000
22	512265070.000
23	614693820.000
24	225075152.000
25	6224615327.000
26	21389795.000

SUMMARY OF INPUT TARGETS:

firm	input: 1
1	2306109.000
2	190445791.145
3	130686576.262
4	284974203.654
5	26494510.022
6	110061343.643
7	55049777.098
8	91961529.109
9	5597417.459
10	4163062.298
11	81750336.456
12	45398431.431
13	67707505.039
14	302566565.827
15	138028131.494
16	32528350.430
17	94792742.642
18	41025233.896
19	713778.082
20	70264191.926
21	5938890.788
22	203131259.120
23	243747889.408
24	89250276.273
25	2468280628.445
26	8481811.947

FIRM BY FIRM RESULTS:

Results for firm: 1
Technical efficiency = 1.000
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	5815644.000	0.000	0.000	5815644.000
input	1	2306109.000	0.000	0.000	2306109.000

LISTING OF PEERS:

peer	lambda weight
1	1.000

Results for firm: 2
Technical efficiency = 0.432
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	480274316.000	0.000	0.000	480274316.000
input	1	440701874.000	-250256082.855	0.000	190445791.145

LISTING OF PEERS:

peer	lambda weight
1	82.583

Results for firm: 3
Technical efficiency = 0.458
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	329570980.000	0.000	0.000	329570980.000
input	1	285550209.000	-154863632.738	0.000	130686576.262

LISTING OF PEERS:

peer	lambda weight
1	56.670

Results for firm: 4
Technical efficiency = 0.569
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	718660097.000	0.000	0.000	718660097.000
input	1	500446461.000	-215472257.346	0.000	284974203.654

LISTING OF PEERS:

peer	lambda weight
1	123.574

Results for firm: 5
Technical efficiency = 0.408
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	66814985.000	0.000	0.000	66814985.000
input	1	64903442.000	-38408931.978	0.000	26494510.022

LISTING OF PEERS:

peer	lambda weight
1	11.489

Results for firm: 6
Technical efficiency = 0.420
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	277557389.000	0.000	0.000	277557389.000
input	1	262253097.000	-152191753.357	0.000	110061343.643

LISTING OF PEERS:

peer	lambda weight
1	47.726

Results for firm: 7
Technical efficiency = 0.428
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	138826875.000	0.000	0.000	138826875.000
input	1	128682411.000	-73632633.902	0.000	55049777.098

LISTING OF PEERS:

peer	lambda weight
1	23.871

Results for firm: 8
Technical efficiency = 0.384
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	231912505.000	0.000	0.000	231912505.000
input	1	239638803.000	-147677273.891	0.000	91961529.109

LISTING OF PEERS:

peer	lambda weight
1	39.877

Results for firm: 9
Technical efficiency = 0.399
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	14115806.000	0.000	0.000	14115806.000
input	1	14038931.000	-8441513.541	0.000	5597417.459

LISTING OF PEERS:

peer	lambda weight
1	2.427

Results for firm: 10
Technical efficiency = 0.398
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	10498588.000	0.000	0.000	10498588.000
input	1	10470820.000	-6307757.702	0.000	4163062.298

LISTING OF PEERS:

peer	lambda weight
1	1.805

Results for firm: 11
Technical efficiency = 0.409
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	206161484.000	0.000	0.000	206161484.000
input	1	200114327.000	-118363990.544	0.000	81750336.456

LISTING OF PEERS:

peer	lambda weight
1	35.449

Results for firm: 12
Technical efficiency = 0.419
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	114487700.000	0.000	0.000	114487700.000
input	1	108231798.000	-62833366.569	0.000	45398431.431

LISTING OF PEERS:

peer	lambda weight
1	19.686

Results for firm: 13
Technical efficiency = 0.406
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	170747673.000	0.000	0.000	170747673.000
input	1	166654243.000	-98946737.961	0.000	67707505.039

LISTING OF PEERS:

peer	lambda weight
1	29.360

Results for firm: 14
Technical efficiency = 0.417
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	763025266.000	0.000	0.000	763025266.000
input	1	726185721.000	-423619155.173	0.000	302566565.827

LISTING OF PEERS:

peer	lambda weight
1	131.202

Results for firm: 15
Technical efficiency = 0.410
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	348085227.000	0.000	0.000	348085227.000
input	1	336438646.000	-198410514.506	0.000	138028131.494

LISTING OF PEERS:

peer	lambda weight
1	59.853

Results for firm: 16
Technical efficiency = 0.269
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	82031381.000	0.000	0.000	82031381.000
input	1	120865519.000	-88337168.570	0.000	32528350.430

LISTING OF PEERS:

peer	lambda weight
1	14.105

Results for firm: 17
Technical efficiency = 0.398
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	239052380.000	0.000	0.000	239052380.000
input	1	238113878.000	-143321135.358	0.000	94792742.642

LISTING OF PEERS:

peer	lambda weight
1	41.105

Results for firm: 18
Technical efficiency = 0.426
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	103459184.000	0.000	0.000	103459184.000
input	1	96341051.000	-55315817.104	0.000	41025233.896

LISTING OF PEERS:

peer	lambda weight
1	17.790

Results for firm: 19
Technical efficiency = 0.556
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	1800036.000	0.000	0.000	1800036.000
input	1	1284746.000	-570967.918	0.000	713778.082

LISTING OF PEERS:

peer	lambda weight
1	0.310

Results for firm: 20
Technical efficiency = 0.402
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	177195235.000	0.000	0.000	177195235.000
input	1	174791349.000	-104527157.074	0.000	70264191.926

LISTING OF PEERS:

peer	lambda weight
1	30.469

Results for firm: 21
Technical efficiency = 0.525
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	14976948.000	0.000	0.000	14976948.000
input	1	11305265.000	-5366374.212	0.000	5938890.788

LISTING OF PEERS:

peer	lambda weight
1	2.575

Results for firm: 22
Technical efficiency = 0.444
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	512265070.000	0.000	0.000	512265070.000
input	1	457126915.000	-253995655.880	0.000	203131259.120

LISTING OF PEERS:

peer	lambda weight
1	88.084

Results for firm: 23
Technical efficiency = 0.397
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	614693820.000	0.000	0.000	614693820.000
input	1	613344087.000	-369596197.592	0.000	243747889.408

LISTING OF PEERS:

peer	lambda weight
1	105.697

Results for firm: 24
Technical efficiency = 0.433
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	225075152.000	0.000	0.000	225075152.000
input	1	205919282.000	-116669005.727	0.000	89250276.273

LISTING OF PEERS:

peer	lambda weight
1	38.702

Results for firm: 25
Technical efficiency = 0.464
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	6224615327.000	0.000	0.000	6224615327.000
input	1	5321654453.000	-2853373824.555	0.000	2468280628.445

LISTING OF PEERS:

peer	lambda weight
1	70.323

Results for firm: 26
Technical efficiency = 0.486
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	21389795.000	0.000	0.000	21389795.000
input	1	17451788.000	-8969976.053	0.000	8481811.947

LISTING OF PEERS:

peer	lambda weight
1	3.678

Appendix E
Results from DEAP Version 2.1| Year 2016

Instruction file = eg1-ins.txt
Data file = eg1-dta.txt
Input orientated DEA
Scale assumption: CRS

Slacks calculated using multi-stage method

Decision Making Units (DMU's):

1. İmar A.Ş.
2. İston A.Ş.
3. İsfalt A.Ş.
4. Kiptaş A.Ş.
5. Bimtaş A.Ş.
6. Kültür A.Ş.
7. Spor A.Ş.
8. İsper A.Ş.
9. İsyön A.Ş.
10. Boğaziçi Yönetim A.Ş.
11. Halk Ekmek A.Ş.
12. Hamidiye A.Ş.
13. Beltur A.Ş.
14. Metro İstanbul A.Ş.
15. İstanbul Otobüs A.Ş.
16. Şehir Hatlari A.Ş.
17. İspark A.Ş.
18. Belbim A.Ş.
19. İsttelkom A.Ş.
20. İsbak A.Ş.
21. Medya A.Ş.
22. Ağaç Ve Peyzaj A.Ş.
23. İstaç A.Ş.
24. İstanbul Enerji A.Ş.
25. İgdaş
26. Ugetam A.Ş.

EFFICIENCY SUMMARY:

firm	te
1	1.000
2	0.697
3	0.769
4	0.922
5	0.710
6	0.708
7	0.684
8	0.684
9	0.701
10	0.695
11	0.743
12	0.778
13	0.688
14	0.706
15	0.720
16	0.763
17	0.692
18	0.675
19	0.934
20	0.697
21	0.935
22	0.763
23	0.698
24	0.724
25	0.762
26	0.684

mean 0.751

SUMMARY OF OUTPUT SLACKS:

firm	output:	1
1		0.000
2		0.000
3		0.000
4		0.000
5		0.000
6		0.000
7		0.000
8		0.000
9		0.000
10		0.000
11		0.000
12		0.000
13		0.000
14		0.000
15		0.000
16		0.000
17		0.000
18		0.000
19		0.000
20		0.000
21		0.000
22		0.000
23		0.000
24		0.000
25		0.000
26		0.000
mean		0.000

SUMMARY OF INPUT SLACKS:

firm	input: 1
1	0.000
2	0.000
3	0.000
4	0.000
5	0.000
6	0.000
7	0.000
8	0.000
9	0.000
10	0.000
11	0.000
12	0.000
13	0.000
14	0.000
15	0.000
16	0.000
17	0.000
18	0.000
19	0.000
20	0.000
21	0.000
22	0.000
23	0.000
24	0.000
25	0.000
26	0.000
mean	0.000

SUMMARY OF PEERS:

firm	peers:
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1
10	1
11	1
12	1
13	1
14	1
15	1
16	1
17	1
18	1
19	1
20	1
21	1
22	1
23	1
24	1
25	1
26	1

SUMMARY OF PEER WEIGHTS:
(in same order as above)

firm	peer weights:
1	1.000
2	42.303
3	69.222
4	234.747
5	31.623
6	66.122
7	26.459
8	48.060
9	3.839
10	1.937
11	37.297
12	19.961
13	29.776
14	125.958
15	58.589
16	22.393
17	44.333
18	18.543
19	5.181
20	43.418
21	5.674
22	87.664
23	110.120
24	40.163
25	93.500
26	3.748

PEER COUNT SUMMARY:
(i.e., no. times each firm is a peer for another)

firm	peer count:
1	25
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0

SUMMARY OF OUTPUT TARGETS:

firm	output: 1
1	6154283.000
2	260343472.000
3	426012394.000
4	1444700182.000
5	133046628.670
6	406930958.000
7	162835422.000
8	295772678.000
9	23629050.000
10	11921578.000
11	229537559.000
12	122848402.000
13	183248791.000
14	775180931.000
15	360573641.000
16	137811907.000
17	272835395.000
18	114119636.000
19	31885754.000
20	267208530.000
21	34918400.000
22	539510406.000
23	677710379.000
24	247175398.000
25	6114277190.000
26	23065127.000

SUMMARY OF INPUT TARGETS:

firm	input: 1
1	4207335.000
2	177982098.283
3	291240564.613
4	987659755.041
5	133046628.670
6	278195666.689
7	111321362.736
8	202203041.393
9	16153844.255
10	8150108.205
11	156921838.953
12	83984500.132
13	125276827.875
14	529947332.992
15	246503792.539
16	94214201.677
17	186522119.087
18	78017136.802
19	21798485.511
20	182675349.926
21	23871733.956
22	368832732.266
23	463312232.705
24	168979831.305
25	4179985291.737
26	15768322.014

FIRM BY FIRM RESULTS:

Results for firm: 1
Technical efficiency = 1.000
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	6154283.000	0.000	0.000	6154283.000
input	1	4207335.000	0.000	0.000	4207335.000

LISTING OF PEERS:

peer	lambda weight
1	1.000

Results for firm: 2
Technical efficiency = 0.697
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	260343472.000	0.000	0.000	260343472.000
input	1	255179613.000	-77197514.717	0.000	177982098.283

LISTING OF PEERS:

peer	lambda weight
1	42.303

Results for firm: 3
Technical efficiency = 0.769
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	426012394.000	0.000	0.000	426012394.000
input	1	378721677.000	-87481112.387	0.000	291240564.613

LISTING OF PEERS:

peer	lambda weight
1	69.222

Results for firm: 4
Technical efficiency = 0.922
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	1444700182.000	0.000	0.000	1444700182.000
input	1	1071703908.000	-84044152.959	0.000	987659755.041

LISTING OF PEERS:

peer	lambda weight
1	234.747

Results for firm: 5
Technical efficiency = 0.710
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	194614074.000	0.000	0.000	194614074.000
input	1	187420208.000	-54373579.330	0.000	133046628.670

LISTING OF PEERS:

peer	lambda weight
1	31.623

Results for firm: 6
Technical efficiency = 0.708
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	406930958.000	0.000	0.000	406930958.000
input	1	393099080.000	-114903413.311	0.000	278195666.689

LISTING OF PEERS:

peer	lambda weight
1	66.122

Results for firm: 7
Technical efficiency = 0.684
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	162835422.000	0.000	0.000	162835422.000
input	1	162811166.000	-51489803.264	0.000	111321362.736

LISTING OF PEERS:

peer	lambda weight
1	26.459

Results for firm: 8
Technical efficiency = 0.684
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	295772678.000	0.000	0.000	295772678.000
input	1	295403091.000	-93200049.607	0.000	202203041.393

LISTING OF PEERS:

peer	lambda weight
1	48.060

Results for firm: 9
Technical efficiency = 0.701
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	23629050.000	0.000	0.000	23629050.000
input	1	23048485.000	-6894640.745	0.000	16153844.255

LISTING OF PEERS:

peer	lambda weight
1	3.839

Results for firm: 10
Technical efficiency = 0.695
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	11921578.000	0.000	0.000	11921578.000
input	1	11733816.000	-3583707.795	0.000	8150108.205

LISTING OF PEERS:

peer	lambda weight
1	1.937

Results for firm: 11
Technical efficiency = 0.743
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	229537559.000	0.000	0.000	229537559.000
input	1	211236169.000	-54314330.047	0.000	156921838.953

LISTING OF PEERS:

peer	lambda weight
1	37.297

Results for firm: 12
Technical efficiency = 0.778
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	122848402.000	0.000	0.000	122848402.000
input	1	107958708.000	-23974207.868	0.000	83984500.132

LISTING OF PEERS:

peer	lambda weight
1	19.961

Results for firm: 13
Technical efficiency = 0.688
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	183248791.000	0.000	0.000	183248791.000
input	1	182037713.000	-56760885.125	0.000	125276827.875

LISTING OF PEERS:

peer	lambda weight
1	29.776

Results for firm: 14
Technical efficiency = 0.706
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	775180931.000	0.000	0.000	775180931.000
input	1	750984164.000	-221036831.008	0.000	529947332.992

LISTING OF PEERS:

peer	lambda weight
1	125.958

Results for firm: 15
Technical efficiency = 0.720
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	360573641.000	0.000	0.000	360573641.000
input	1	342222464.000	-95718671.461	0.000	246503792.539

LISTING OF PEERS:

peer	lambda weight
1	58.589

Results for firm: 16
Technical efficiency = 0.763
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	137811907.000	0.000	0.000	137811907.000
input	1	123427287.000	-29213085.323	0.000	94214201.677

LISTING OF PEERS:

peer	lambda weight
1	22.393

Results for firm: 17
Technical efficiency = 0.692
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	272835395.000	0.000	0.000	272835395.000
input	1	269727688.000	-83205568.913	0.000	186522119.087

LISTING OF PEERS:

peer	lambda weight
1	44.333

Results for firm: 18
Technical efficiency = 0.675
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	114119636.000	0.000	0.000	114119636.000
input	1	115655081.000	-37637944.198	0.000	78017136.802

LISTING OF PEERS:

peer	lambda weight
1	18.543

Results for firm: 19
Technical efficiency = 0.934
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	31885754.000	0.000	0.000	31885754.000
input	1	23334953.000	-1536467.489	0.000	21798485.511

LISTING OF PEERS:

peer	lambda weight
1	5.181

Results for firm: 20
Technical efficiency = 0.697
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	267208530.000	0.000	0.000	267208530.000
input	1	262001193.000	-79325843.074	0.000	182675349.926

LISTING OF PEERS:

peer	lambda weight
1	43.418

Results for firm: 21
Technical efficiency = 0.935
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	34918400.000	0.000	0.000	34918400.000
input	1	25539429.000	-1667695.044	0.000	23871733.956

LISTING OF PEERS:

peer	lambda weight
1	5.674

Results for firm: 22
Technical efficiency = 0.763
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	539510406.000	0.000	0.000	539510406.000
input	1	483508615.000	-114675882.734	0.000	368832732.266

LISTING OF PEERS:

peer	lambda weight
1	87.664

Results for firm: 23
Technical efficiency = 0.698
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	677710379.000	0.000	0.000	677710379.000
input	1	663324022.000	-200011789.295	0.000	463312232.705

LISTING OF PEERS:

peer	lambda weight
1	110.120

Results for firm: 24
Technical efficiency = 0.724
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	247175398.000	0.000	0.000	247175398.000
input	1	233488605.000	-64508773.695	0.000	168979831.305

LISTING OF PEERS:

peer	lambda weight
1	40.163

Results for firm: 25
Technical efficiency = 0.762
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	6114277190.000	0.000	0.000	6114277190.000
input	1	5485818856.000	-1305833564.263	0.000	4179985291.737

LISTING OF PEERS:

peer	lambda weight
1	93.500

Results for firm: 26
Technical efficiency = 0.684
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	23065127.000	0.000	0.000	23065127.000
input	1	23063856.000	-7295533.986	0.000	15768322.014

LISTING OF PEERS:

peer	lambda weight
1	3.748

Appendix F
Results from DEAP Version 2.1| Year 2017

Instruction file = eg1-ins.txt
Data file = eg1-dta.txt
Input orientated DEA
Scale assumption: CRS

Slacks calculated using multi-stage method

Decision Making Units (DMU's):

1. İmar A.Ş.
2. İston A.Ş.
3. İsfalt A.Ş.
4. Kiptaş A.Ş.
5. Bimtaş A.Ş.
6. Kültür A.Ş.
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14. Beltur A.Ş.
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18. İspark A.Ş.
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24. İstaç A.Ş.
25. İstanbul Enerji A.Ş.
26. İgdaş
27. Ugetam A.Ş.

EFFICIENCY SUMMARY:

firm	te
1	1.000
2	0.313
3	0.362
4	0.322
5	0.320
6	0.323
7	0.303
8	0.311
9	0.305
10	0.308
11	0.311
12	0.316
13	0.343
14	0.306
15	0.305
16	0.305
17	0.342
18	0.318
19	0.359
20	0.463
21	0.307
22	0.309
23	0.346
24	0.362
25	0.365
26	0.340
27	0.304
mean	0.354

SUMMARY OF OUTPUT SLACKS:

firm	output: 1
1	0.000
2	0.000
3	0.000
4	0.000
5	0.000
6	0.000
7	0.000
8	0.000
9	0.000
10	0.000
11	0.000
12	0.000
13	0.000
14	0.000
15	0.000
16	0.000
17	0.000
18	0.000
19	0.000
20	0.000
21	0.000
22	0.000
23	0.000
24	0.000
25	0.000
26	0.000
27	0.000
mean	0.000

SUMMARY OF INPUT SLACKS:

firm	input: 1
1	0.000
2	0.000
3	0.000
4	0.000
5	0.000
6	0.000
7	0.000
8	0.000
9	0.000
10	0.000
11	0.000
12	0.000
13	0.000
14	0.000
15	0.000
16	0.000
17	0.000
18	0.000
19	0.000
20	0.000
21	0.000
22	0.000
23	0.000
24	0.000
25	0.000
26	0.000
27	0.000
mean	0.000

SUMMARY OF PEERS:

firm	peers:
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1
10	1
11	1
12	1
13	1
14	1
15	1
16	1
17	1
18	1
19	1
20	1
21	1
22	1
23	1
24	1
25	1
26	1
27	1

SUMMARY OF PEER WEIGHTS:
(in same order as above)

firm	peer weights:
1	1.000
2	21.008
3	15.144
4	88.491
5	16.426
6	32.464
7	12.574
8	22.890
9	1.527
10	0.787
11	3.081
12	14.043
13	7.757
14	13.455
15	52.948
16	22.788
17	11.198
18	19.358
19	9.336
20	7.313
21	27.875
22	2.883
23	47.072
24	57.792
25	24.135
26	99.197
27	1.921

PEER COUNT SUMMARY:
(i.e., no. times each firm is a peer for another)

firm	peer count:
1	26
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0

SUMMARY OF OUTPUT TARGETS:

firm	output: 1
1	16438632.000
2	345342288.000
3	248942676.000
4	1454662819.000
5	270012980.000
6	533656658.000
7	206695287.000
8	376280176.000
9	25109370.000
10	12937172.000
11	50651203.000
12	230850808.000
13	127517463.000
14	221188132.000
15	870385787.000
16	374595567.000
17	184084898.000
18	318210943.000
19	153469953.000
20	120213548.000
21	458220649.000
22	47397165.000
23	773795895.000
24	950022320.000
25	396746408.000
26	6562244385.000
27	31578139.000

SUMMARY OF INPUT TARGETS:

firm	input: 1
1	4981957.000
2	104660803.228
3	75445554.551
4	440855882.275
5	81831204.434
6	161732102.946
7	62641893.312
8	114036962.247
9	7609745.241
10	3920790.648
11	15350554.434
12	69962561.293
13	38645947.997
14	67034152.388
15	263782568.053
16	113526417.964
17	55789499.162
18	96438270.226
19	46511212.529
20	36432394.554
21	138870166.923
22	14364372.775
23	234509652.364
24	287917531.537
25	120239539.675
26	1988779805.373
27	9570196.026

FIRM BY FIRM RESULTS:

Results for firm: 1
Technical efficiency = 1.000
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	16438632.000	0.000	0.000	16438632.000
input	1	4981957.000	0.000	0.000	4981957.000

LISTING OF PEERS:

peer	lambda weight
1	1.000

Results for firm: 2
Technical efficiency = 0.313
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	345342288.000	0.000	0.000	345342288.000
input	1	334237121.000	-229576317.772	0.000	104660803.228

LISTING OF PEERS:

peer	lambda weight
1	21.008

Results for firm: 3
Technical efficiency = 0.362
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	248942676.000	0.000	0.000	248942676.000
input	1	208317283.000	-132871728.449	0.000	75445554.551

LISTING OF PEERS:

peer	lambda weight
1	15.144

Results for firm: 4
Technical efficiency = 0.322
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	1454662819.000	0.000	0.000	1454662819.000
input	1	1370580641.000	-929724758.725	0.000	440855882.275

LISTING OF PEERS:

peer	lambda weight
1	88.491

Results for firm: 5
Technical efficiency = 0.320
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	270012980.000	0.000	0.000	270012980.000
input	1	255347337.000	-173516132.566	0.000	81831204.434

LISTING OF PEERS:

peer	lambda weight
1	16.426

Results for firm: 6
Technical efficiency = 0.323
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	533656658.000	0.000	0.000	533656658.000
input	1	501452704.000	-339720601.054	0.000	161732102.946

LISTING OF PEERS:

peer	lambda weight
1	32.464

Results for firm: 7
Technical efficiency = 0.303
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	206695287.000	0.000	0.000	206695287.000
input	1	206648759.000	-144006865.688	0.000	62641893.312

LISTING OF PEERS:

peer	lambda weight
1	12.574

Results for firm: 8
Technical efficiency = 0.311
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	376280176.000	0.000	0.000	376280176.000
input	1	366955361.000	-252918398.753	0.000	114036962.247

LISTING OF PEERS:

peer	lambda weight
1	22.890

Results for firm: 9
Technical efficiency = 0.305
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	25109370.000	0.000	0.000	25109370.000
input	1	24937370.000	-17327624.759	0.000	7609745.241

LISTING OF PEERS:

peer	lambda weight
1	1.527

Results for firm: 10
Technical efficiency = 0.308
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	12937172.000	0.000	0.000	12937172.000
input	1	12746490.000	-8825699.352	0.000	3920790.648

LISTING OF PEERS:

peer	lambda weight
1	0.787

Results for firm: 11
Technical efficiency = 0.311
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	50651203.000	0.000	0.000	50651203.000
input	1	49382240.000	-34031685.566	0.000	15350554.434

LISTING OF PEERS:

peer	lambda weight
1	3.081

Results for firm: 12
Technical efficiency = 0.316
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	230850808.000	0.000	0.000	230850808.000
input	1	221204747.000	-151242185.707	0.000	69962561.293

LISTING OF PEERS:

peer	lambda weight
1	14.043

Results for firm: 13
Technical efficiency = 0.343
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	127517463.000	0.000	0.000	127517463.000
input	1	112745712.000	-74099764.003	0.000	38645947.997

LISTING OF PEERS:

peer	lambda weight
1	7.757

Results for firm: 14
Technical efficiency = 0.306
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	221188132.000	0.000	0.000	221188132.000
input	1	218815506.000	-151781353.612	0.000	67034152.388

LISTING OF PEERS:

peer	lambda weight
1	13.455

Results for firm: 15
Technical efficiency = 0.305
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	870385787.000	0.000	0.000	870385787.000
input	1	864611917.000	-600829348.947	0.000	263782568.053

LISTING OF PEERS:

peer	lambda weight
1	52.948

Results for firm: 16
Technical efficiency = 0.305
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	374595567.000	0.000	0.000	374595567.000
input	1	372429140.000	-258902722.036	0.000	113526417.964

LISTING OF PEERS:

peer	lambda weight
1	22.788

Results for firm: 17
Technical efficiency = 0.342
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	184084898.000	0.000	0.000	184084898.000
input	1	163134727.000	-107345227.838	0.000	55789499.162

LISTING OF PEERS:

peer	lambda weight
1	11.198

Results for firm: 18
Technical efficiency = 0.318
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	318210943.000	0.000	0.000	318210943.000
input	1	303618574.000	-207180303.774	0.000	96438270.226

LISTING OF PEERS:

peer	lambda weight
1	19.358

Results for firm: 19
Technical efficiency = 0.359
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	153469953.000	0.000	0.000	153469953.000
input	1	129527875.000	-83016662.471	0.000	46511212.529

LISTING OF PEERS:

peer	lambda weight
1	9.336

Results for firm: 20
Technical efficiency = 0.463
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	120213548.000	0.000	0.000	120213548.000
input	1	78654525.000	-42222130.446	0.000	36432394.554

LISTING OF PEERS:

peer	lambda weight
1	7.313

Results for firm: 21
Technical efficiency = 0.307
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	458220649.000	0.000	0.000	458220649.000
input	1	452435135.000	-313564968.077	0.000	138870166.923

LISTING OF PEERS:

peer	lambda weight
1	27.875

Results for firm: 22
Technical efficiency = 0.309
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	47397165.000	0.000	0.000	47397165.000
input	1	46457616.000	-32093243.225	0.000	14364372.775

LISTING OF PEERS:

peer	lambda weight
1	2.883

Results for firm: 23
Technical efficiency = 0.346
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	773795895.000	0.000	0.000	773795895.000
input	1	678713588.000	-444203935.636	0.000	234509652.364

LISTING OF PEERS:

peer	lambda weight
1	47.072

Results for firm: 24
Technical efficiency = 0.362
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	950022320.000	0.000	0.000	950022320.000
input	1	795871476.000	-507953944.463	0.000	287917531.537

LISTING OF PEERS:

peer	lambda weight
1	57.792

Results for firm: 25
Technical efficiency = 0.365
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	396746408.000	0.000	0.000	396746408.000
input	1	329733722.000	-209494182.325	0.000	120239539.675

LISTING OF PEERS:

peer	lambda weight
1	24.135

Results for firm: 26
Technical efficiency = 0.340
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	6562244385.000	0.000	0.000	6562244385.000
input	1	5842464679.000	-3853684873.627	0.000	1988779805.373

LISTING OF PEERS:

peer	lambda weight
1	99.197

Results for firm: 27
Technical efficiency = 0.304
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	31578139.000	0.000	0.000	31578139.000
input	1	31495358.000	-21925161.974	0.000	9570196.026

LISTING OF PEERS:

peer	lambda weight
1	1.921

Appendix G
Results from DEAP Version 2.1| Year 2018

Instruction file = eg1-ins.txt
Data file = eg1-dta.txt
Input orientated DEA
Scale assumption: CRS

Slacks calculated using multi-stage method

Decision Making Units (DMU's):

1. İmar A.Ş.
2. İston A.Ş.
3. İsfalt A.Ş.
4. Kiptaş A.Ş.
5. Bimtaş A.Ş.
6. Kültür A.Ş.
7. Spor A.Ş.
8. İsper A.Ş.
9. İsyön A.Ş.
10. Boğaziçi Yönetim A.Ş.
11. İstgüven A.Ş.
12. Halk Ekmek A.Ş.
13. Hamidiye A.Ş.
14. Güvensu A.Ş.
15. Beltur A.Ş.
16. Metro İstanbul A.Ş.
17. İstanbul Otobüs A.Ş.
18. Şehir Hatlari A.Ş.
19. İspark A.Ş.
20. Belbim A.Ş.
21. İsttelkom A.Ş.
22. İsbak A.Ş.
23. Medya A.Ş.
24. Ağaç Ve Peyzaj A.Ş.
25. İstaç A.Ş.
26. İstanbul Enerji A.Ş.
27. İgdaş
28. Ugetam A.Ş.

EFFICIENCY SUMMARY:

firm	te
1	0.979
2	0.811
3	0.774
4	0.872
5	0.778
6	0.860
7	0.801
8	0.796
9	0.776
10	0.777
11	0.792
12	0.813
13	0.801
14	0.828
15	0.772
16	0.775
17	0.778
18	0.800
19	0.781
20	0.962
21	1.000
22	0.811
23	0.779
24	0.814
25	0.943
26	0.821
27	0.848
28	0.831

mean 0.828

SUMMARY OF OUTPUT SLACKS:

firm	output: 1
1	0.000
2	0.000
3	0.000
4	0.000
5	0.000
6	0.000
7	0.000
8	0.000
9	0.000
10	0.000
11	0.000
12	0.000
13	0.000
14	0.000
15	0.000
16	0.000
17	0.000
18	0.000
19	0.000
20	0.000
21	0.000
22	0.000
23	0.000
24	0.000
25	0.000
26	0.000
27	0.000
28	0.000
mean	0.000

SUMMARY OF INPUT SLACKS:

firm	input: 1
1	0.000
2	0.000
3	0.000
4	0.000
5	0.000
6	0.000
7	0.000
8	0.000
9	0.000
10	0.000
11	0.000
12	0.000
13	0.000
14	0.000
15	0.000
16	0.000
17	0.000
18	0.000
19	0.000
20	0.000
21	0.000
22	0.000
23	0.000
24	0.000
25	0.000
26	0.000
27	0.000
28	0.000
mean	0.000

SUMMARY OF PEERS:

firm	peers:
1	21
2	21
3	21
4	21
5	21
6	21
7	21
8	21
9	21
10	21
11	21
12	21
13	21
14	21
15	21
16	21
17	21
18	21
19	21
20	21
21	21
22	21
23	21
24	21
25	21
26	21
27	21
28	21

SUMMARY OF PEER WEIGHTS:
(in same order as above)

firm	peer weights:
1	0.203
2	5.110
3	5.579
4	7.487
5	2.185
6	6.274
7	2.913
8	8.818
9	0.432
10	2.139
11	5.504
12	2.753
13	1.508
14	0.042
15	2.603
16	9.791
17	4.350
18	2.125
19	3.520
20	1.558
21	1.000
22	4.520
23	0.942
24	7.808
25	10.954
26	4.631
27	3.035
28	0.501

PEER COUNT SUMMARY:
(i.e., no. times each firm is a peer for another)

firm	peer count:
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	27
22	0
23	0
24	0
25	0
26	0
27	0
28	0

SUMMARY OF OUTPUT TARGETS:

firm	output: 1
1	20584493.000
2	519262503.000
3	566879599.000
4	760776602.000
5	222034173.000
6	637491143.000
7	296022897.000
8	895995844.000
9	43930872.000
10	217354030.000
11	559206828.000
12	279753177.000
13	118198007.090
14	4259857.000
15	264464260.000
16	994893751.000
17	442012313.000
18	215894414.000
19	357665799.000
20	158299462.000
21	101609242.000
22	459237833.000
23	95712341.000
24	793410841.000
25	1112979765.000
26	470526214.000
27	7421035585.000
28	50908000.000

SUMMARY OF INPUT TARGETS:

firm	input: 1
1	15881554.395
2	400626611.816
3	437364631.074
4	586961990.607
5	171306031.001
6	491843557.368
7	228390553.063
8	691287695.741
9	33893986.764
10	167695160.156
11	431444857.874
12	215837975.588
13	118198007.090
14	3286607.577
15	204042117.076
16	767590400.381
17	341025770.810
18	166569022.587
19	275949902.772
20	122132787.842
21	78394581.000
22	354315776.683
23	73844944.825
24	612140285.832
25	858697305.690
26	363025101.556
27	5725551768.924
28	39277050.502

FIRM BY FIRM RESULTS:

Results for firm: 1
Technical efficiency = 0.979
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	20584493.000	0.000	0.000	20584493.000
input	1	16220225.000	-338670.605	0.000	15881554.395

LISTING OF PEERS:

peer	lambda weight
21	0.203

Results for firm: 2
Technical efficiency = 0.811
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	519262503.000	0.000	0.000	519262503.000
input	1	493742370.000	-93115758.184	0.000	400626611.816

LISTING OF PEERS:

peer	lambda weight
21	5.110

Results for firm: 3
Technical efficiency = 0.774
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	566879599.000	0.000	0.000	566879599.000
input	1	564994191.000	-127629559.926	0.000	437364631.074

LISTING OF PEERS:

peer	lambda weight
21	5.579

Results for firm: 4
Technical efficiency = 0.872
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	760776602.000	0.000	0.000	760776602.000
input	1	672811429.000	-85849438.393	0.000	586961990.607

LISTING OF PEERS:

peer	lambda weight
21	7.487

Results for firm: 5
Technical efficiency = 0.778
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	222034173.000	0.000	0.000	222034173.000
input	1	220128349.000	-48822317.999	0.000	171306031.001

LISTING OF PEERS:

peer	lambda weight
21	2.185

Results for firm: 6
Technical efficiency = 0.860
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	637491143.000	0.000	0.000	637491143.000
input	1	571985734.000	-80142176.632	0.000	491843557.368

LISTING OF PEERS:

peer	lambda weight
21	6.274

Results for firm: 7
Technical efficiency = 0.801
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	296022897.000	0.000	0.000	296022897.000
input	1	285044954.000	-56654400.937	0.000	228390553.063

LISTING OF PEERS:

peer	lambda weight
21	2.913

Results for firm: 8
Technical efficiency = 0.796
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	895995844.000	0.000	0.000	895995844.000
input	1	868555275.000	-177267579.259	0.000	691287695.741

LISTING OF PEERS:

peer	lambda weight
21	8.818

Results for firm: 9
Technical efficiency = 0.776
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	43930872.000	0.000	0.000	43930872.000
input	1	43660872.000	-9766885.236	0.000	33893986.764

LISTING OF PEERS:

peer	lambda weight
21	0.432

Results for firm: 10
Technical efficiency = 0.777
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	217354030.000	0.000	0.000	217354030.000
input	1	215718085.000	-48022924.844	0.000	167695160.156

LISTING OF PEERS:

peer	lambda weight
21	2.139

Results for firm: 11
Technical efficiency = 0.792
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	559206828.000	0.000	0.000	559206828.000
input	1	545077089.000	-113632231.126	0.000	431444857.874

LISTING OF PEERS:

peer	lambda weight
21	5.504

Results for firm: 12
Technical efficiency = 0.813
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	279753177.000	0.000	0.000	279753177.000
input	1	265473841.000	-49635865.412	0.000	215837975.588

LISTING OF PEERS:

peer	lambda weight
21	2.753

Results for firm: 13
Technical efficiency = 0.801
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	153199491.000	0.000	0.000	153199491.000
input	1	147492574.000	-29294566.910	0.000	118198007.090

LISTING OF PEERS:

peer	lambda weight
21	1.508

Results for firm: 14
Technical efficiency = 0.828
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	4259857.000	0.000	0.000	4259857.000
input	1	3970111.000	-683503.423	0.000	3286607.577

LISTING OF PEERS:

peer	lambda weight
21	0.042

Results for firm: 15
Technical efficiency = 0.772
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	264464260.000	0.000	0.000	264464260.000
input	1	264333699.000	-60291581.924	0.000	204042117.076

LISTING OF PEERS:

peer	lambda weight
21	2.603

Results for firm: 16
Technical efficiency = 0.775
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	994893751.000	0.000	0.000	994893751.000
input	1	990229496.000	-222639095.619	0.000	767590400.381

LISTING OF PEERS:

peer	lambda weight
21	9.791

Results for firm: 17
Technical efficiency = 0.778
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	442012313.000	0.000	0.000	442012313.000
input	1	438595376.000	-97569605.190	0.000	341025770.810

LISTING OF PEERS:

peer	lambda weight
21	4.350

Results for firm: 18
Technical efficiency = 0.800
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	215894414.000	0.000	0.000	215894414.000
input	1	208158458.000	-41589435.413	0.000	166569022.587

LISTING OF PEERS:

peer	lambda weight
21	2.125

Results for firm: 19
Technical efficiency = 0.781
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	357665799.000	0.000	0.000	357665799.000
input	1	353239625.000	-77289722.228	0.000	275949902.772

LISTING OF PEERS:

peer	lambda weight
21	3.520

Results for firm: 20
Technical efficiency = 0.962
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	158299462.000	0.000	0.000	158299462.000
input	1	126900825.000	-4768037.158	0.000	122132787.842

LISTING OF PEERS:

peer	lambda weight
21	1.558

Results for firm: 21
Technical efficiency = 1.000
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	101609242.000	0.000	0.000	101609242.000
input	1	78394581.000	0.000	0.000	78394581.000

LISTING OF PEERS:

peer	lambda weight
21	1.000

Results for firm: 22
Technical efficiency = 0.811
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	459237833.000	0.000	0.000	459237833.000
input	1	436737833.000	-82422056.317	0.000	354315776.683

LISTING OF PEERS:

peer	lambda weight
21	4.520

Results for firm: 23
Technical efficiency = 0.779
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	95712341.000	0.000	0.000	95712341.000
input	1	94811262.000	-20966317.175	0.000	73844944.825

LISTING OF PEERS:

peer	lambda weight
21	0.942

Results for firm: 24
Technical efficiency = 0.814
PROJECTION SUMMARY:

variable		original value	radial movement	slack movement	projected value
output	1	793410841.000	0.000	0.000	793410841.000
input	1	752113906.000	-139973620.168	0.000	612140285.832

LISTING OF PEERS:

peer	lambda weight
21	7.808

Results for firm: 25
Technical efficiency = 0.943
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	1112979765.000	0.000	0.000	1112979765.000
input	1	910212481.000	-51515175.310	0.000	858697305.690

LISTING OF PEERS:

peer	lambda weight
21	10.954

Results for firm: 26
Technical efficiency = 0.821
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	470526214.000	0.000	0.000	470526214.000
input	1	442268753.000	-79243651.444	0.000	363025101.556

LISTING OF PEERS:

peer	lambda weight
21	4.631

Results for firm: 27
Technical efficiency = 0.848
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	7421035585.000	0.000	0.000	7421035585.000
input	1	6755383879.000	-1029832110.076	0.000	5725551768.924

LISTING OF PEERS:

peer	lambda weight
21	3.035

Results for firm: 28
Technical efficiency = 0.831
PROJECTION SUMMARY:

	variable	original value	radial movement	slack movement	projected value
output	1	50908000.000	0.000	0.000	50908000.000
input	1	47272000.000	-7994949.498	0.000	39277050.502

LISTING OF PEERS:

peer	lambda weight
21	0.501

RESUME

The researcher had his B.A in modern languages from Yarmouk University - Jordan in 1998; he also got his Maitrise degree (Master 1) in Exchange and Languages Diffusions from University de Rouen – Distance Learning, France in 2007. He worked in the educational and management filed for many years and he works as a trainer in leadership, management, communication and soft skills programs for local & international training centers.